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ON

PRACTICAL EDUCATION;

BY

MARIA & R. L. EDGEWORTH.

A NEW EDITION.

IN THREE VOLUMES.

VOL. II.

L O N D O N :

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influence of sympathy upon all social beings is sufficiently obvious, and we immediately perceive its necessary connexion with compassion, friendship, and benevolence ; but the subject becomes more intricate when we are to analyse our sense of propriety and justice ; of merit and demerit ; of gratitude and resentment ; self-complacency or remorse ; ambition and shame.*

We allow without hesitation, that a being destitute of sympathy could never have any of these feelings, and must consequently be incapable of all intercourse with society ; yet we must at the same time perceive, that a being endowed with the most exquisite sympathy must, without the assistance and education of reason, be, if not equally incapable of social intercourse, far more dangerous to the happiness of society. A person governed by sympathy alone must be influenced by the bad as well as by the good passions of others ; he must feel resentment with the angry man ; hatred with the malevolent ; jealousy with the jealous ; and avarice with the miser : the more lively his

* Adam Smith.

sympathy with these painful feelings, the greater must be his misery : the more forcibly he is impelled to action by this sympathetic influence, the greater, probably, must be his imprudence and his guilt. Let us even suppose a being capable of sympathising only with the best feelings of his fellow-creatures, still, without the direction of reason, he would be a nuisance in the world ; his pity would stop the hand, and overturn the balance of justice ; his love would be as dangerous as his pity ; his gratitude would exalt his benefactor at the expense of the whole human race ; his sympathy with the rich, the prosperous, the great, and the fortunate, would be so sudden, and so violent, as to leave him no time for reflection upon the consequences of tyranny, or the miseries occasioned by monopoly. No time for reflection, did we say ? We forgot that we were speaking of a being destitute of the reasoning faculty ! Such a being, no matter what his virtuous sympathies might be, must act either like a madman or a fool. On sympathy we cannot depend either for the correctness of a man's moral sentiments, or for the steadiness of his moral conduct. It is

very common to talk of the excellence of a person's heart ; of the natural goodness of his disposition ; when these expressions distinctly mean any thing, they must refer to natural sympathy, or a superior degree of sensibility. Experience, however, does not teach us, that sensibility and virtue have any certain connexion with each other. No one can read the works of Sterne or of Rousseau, without believing these men to have been endowed with extraordinary sensibility ; yet who would propose their conduct in life as a model for imitation ? that quickness of sympathy with present objects of distress, which constitutes compassion, is usually thought a virtue, but it is a virtue frequently found in persons of abandoned character.

“ Should any one of us,” says Mandeville,* “ be locked up in a ground-room, “ where, in a yard joining to it, there was “ a thriving good-humoured child at play, of “ two or three years old, so near us that “ through the grates of the window we could “ almost touch it with our hands ; and if, “ whilst we took delight in the harmless di-

* Essay upon Charity Schools.

“ version, and imperfect prattle, of the inno-
 “ cent babe, a nasty, over-grown sow should
 “ come in upon the child, set it a screaming,
 “ and frighten it out of its wits ; it is natural
 “ to think, that this would make us uneasy, and
 “ that with crying out, and making all the
 “ menacing noise we could, we should en-
 “ deavour to drive the sow away. But if
 “ this should happen to be an half-starved
 “ creature, that, mad with hunger, went
 “ roaming about in quest of food, and we
 “ should behold the ravenous brute, in spite
 “ of our cries, and all the threatening gestures
 “ we could think of, actually lay hold of the
 “ helpless infant, destroy, and devour it ;—to
 “ see her widely open her destructive jaws,
 “ and the poor lamb beat down with greedy
 “ haste ; to look on the defenceless posture
 “ of tender limbs first trampled upon, then
 “ torn asunder ; to see the filthy snout dig-
 “ ging in the yet living entrails, suck up the
 “ smocking blood, and now and then to hear
 “ the crackling of the bones, and the cruel
 “ animal grunt with savage pleasure over the
 “ horrid banquet ; to hear and see all this,
 “ what torture would it give the soul beyond
 “ expression ! * * * * * * * *

“ Not only a man of humanity, of good
“ morals, and commiseration, but likewise
“ an highwayman, an house-breaker, or a
“ murderer, could feel anxieties on such an
“ occasion.”

Amongst those monsters, who are pointed out by historians to the just detestation of all mankind, we meet with instances of casual sympathy and sensibility ; even their vices frequently prove to us, that they never became utterly indifferent to the opinion and feelings of their fellow-creatures. The dissimulation, jealousy, suspicion, and cruelty of Tiberius, originated, perhaps, more in his anxiety about the opinions which were formed of his character, than in his fears of any conspiracies against his life. The “ *judge within,*” the habit of viewing his own conduct in the light in which it was beheld by the impartial spectator, prompted him to new crimes ; and thus his unextinguished sympathy, and his exasperated sensibility, drove him to excesses, from which a more torpid temperament might have preserved him.* When, upon his presenting the sons

* See Smith.

of Germanicus to the senate, Tiberius beheld the tenderness with which these young men were received, he was moved to such an agony of jealousy as instantly to beseech the senate that he might resign the empire. We cannot attribute either to policy, or fear, this strong emotion, because we know that the senate was at this time absolutely at the disposal of Tiberius, and the lives of the sons of Germanicus depended upon his pleasure.

The desire to excel, according to "Smith's Theory of Moral Sentiments," is to be resolved principally into our love of the sympathy of our fellow-creatures. We wish for their sympathy, either in our success, or in the pleasure we feel in superiority. The desire for this refined modification of sympathy may be the motive of good and great actions, but it cannot be trusted as a moral principle. Nero's love of sympathy made him anxious to be applauded on the stage as a fiddler and a buffoon. Tiberius banished one of his philosophic courtiers, and persecuted him till the unfortunate man laid violent hands upon himself, merely because he had discovered that the emperor read books in the morning to prepare himself with ques-

tions for his literary society at night. Dionysius, the tyrant of Syracuse, sued in the most abject manner for an Olympic crown, and sent a critic to the galleys for finding fault with his verses. Had not these men a sufficient degree of sensibility to praise, and more than a sufficient desire for the sympathy of their fellow-creatures ?

At the age when children begin to unfold their ideas, and to express their thoughts in words, they are such interesting and entertaining companions, that they attract a large portion of our daily attention : we listen eagerly to their simple observations : we enter into their young astonishment at every new object ; we are delighted to watch all their emotions ; we help them with words to express their ideas ; we anxiously endeavour to understand their imperfect reasonings, and are pleased to find, or put them in the right. This season of universal smiles and courtesy is delightful to children whilst it lasts, but it soon passes away ; they soon speak without exciting any astonishment, and instead of meeting with admiration for every attempt to express an idea, they are repulsed for troublesome volubility ; even when they

talk sense, they are suffered to talk unheard, or else they are checked for unbecoming presumption. Children feel this change in public opinion and manners most severely ; they are not sensible of any change in themselves, except, perhaps, they are conscious of having improved both in sense and language. This unmerited loss of their late gratuitous allowance of sympathy usually operates unfavourably upon the temper of the sufferers ; they become shy and silent, and reserved, if not sullen ; they withdraw from our capricious society, and they endeavour to console themselves with other pleasures. They feel discontented with their own little occupations and amusements, for want of the spectators and the audience which used to be at their command. Children of a timid temper, or of an indolent disposition, are quite dispirited and bereft of all energy in these circumstances ; others, with greater vivacity, and more voluntary exertion, endeavour to supply the loss of universal sympathy by the invention of independent occupations ; but they feel anger and indignation, when they are not rewarded with any smiles or any praise for their “ virtuous toil.” They natu-

rally seek for new companions, either amongst children of their own age, or amongst complaisant servants. Immediately all the business of education is at a stand ; for neither these servants, nor these playfellows, are capable of becoming their instructors ; nor can tutors hope to succeed, who have transferred their power over the pleasures, and consequently over the affections, of their pupils. Sympathy now becomes the declared enemy of all the constituted authorities. What chance is there of obedience or of happiness, under such a government ?

· Would it not be more prudent to prevent, than to complain, of these evils ? Sympathy is our first, best friend, in education, and by judicious management, might long continue our faithful ally.

· Instead of lavishing our smiles and our attention upon young children for a short period just at that age when they are amusing playthings, should not we do more wisely if we reserved some portion of our kindness a few years longer ? By a proper *economy* our sympathy may last for many years, and may continually contribute to the most useful purposes. Instead of accustoming our pupils

early to such a degree of our attention as cannot be supported long on our parts, we should rather suffer them to feel a little *ennui* at that age, when they can have but few independent or useful occupations. We should employ ourselves in our usual manner, and converse, without allowing children to interrupt us with frivolous prattle ; but whenever they ask sensible questions, make just observations, or show a disposition to acquire knowledge, we should assist and encourage them with praise and affection ; gradually as they become capable of taking any part in conversation, they should be admitted into society, and they will learn of themselves, or we may teach them, that useful and agreeable qualities are those by which they must secure the pleasures of sympathy. Esteem, being associated with sympathy, will increase its value, and this connexion should be made as soon, and kept as sacred in the mind, as possible.

With respect to the sympathy which children feel for each other, it must be carefully managed, or it will counteract, instead of assisting us, in education. It is natural that those who are placed nearly in the same circumstances should feel alike, and sympathise

with one another ; but children feel only for the present, they have few ideas of the future, and consequently all that they can desire, either for themselves, or for their companions, is, what will *immediately* please. Education looks to the future, and frequently we must ensure future advantage, even at the expense of present pain or restraint. The companion and the tutor then, supposing each to be equally good and equally kind, must command, in a very different degree, the sympathy of the child. It may, notwithstanding, be questioned, whether those who are constant companions in their idle hours, when they are *very* young, are likely to be either as fond of one another when they grow up, or even as happy whilst they are children, as those who spend less time together. Whenever the humours, interests, and passions, of others cross our own, there is an end of sympathy ; and this happens almost every hour in the day with children. It is generally supposed, that they learn to live in friendship with each other, and to bear with one another's little faults habitually ; that they even reciprocally cure these faults, and learn, by early experience, those principles

of honour and justice on which society depends. We may be deceived in this reasoning by a false analogy.

We call the society of children *society in miniature*; the proportions of the miniature are so much altered, that it is by no means an accurate resemblance of that which exists in the *civilized* world. Amongst children of different ages, strength, and talents, there must always be tyranny, injustice, and that worst species of inequality, which arises from superior force on the one side, and abject timidity on the other. Of this the spectators of juvenile disputes and quarrels are sometimes sensible, and they hastily interfere and endeavour to part the combatants by pronouncing certain moral sentences, such as, "Good boys never quarrel; brothers must love and help one another." But these sentences seldom operate as a charm upon the angry passions; the parties concerned hearing it asserted that they must love one another, at the very instant when they happen to feel that they cannot, are still farther exasperated, and they stand at bay, sullen in hatred, or approach hypocritical in reconciliation. It is more easy to

prevent occasions of dispute, than to remedy the bad consequences which petty altercations produce. Young children should be kept asunder at all times and in all situations in which it is necessary, or probable, that their appetites and passions should be in direct competition. Two hungry children, with their eager eyes fixed upon one and the same bason of bread and milk, do not sympathize with each other, though they have the same sensations; each perceives, that if the other eats the bread and milk, he cannot eat it. Hunger is more powerful than sympathy; but satisfy the hunger of one of the parties, and immediately he will begin to feel for his companion, and will wish that *his* hunger should also be satisfied. Even Mr. Barnet, the epicure, who is so well described in Moore's excellent novel,* *after* he has crammed himself to the throat, asks his wife to "try to eat a bit." Intelligent preceptors will apply the instance of the bason of bread and milk in a variety of apparently dissimilar circumstances.

We may observe, that the more quickly

* Edward.

children reason, the sooner they discover how far their interests are anywise incompatible with the interests of their companions. The more readily a boy calculates, the sooner he would perceive, that if he were to share his bason of bread and milk equally with a dozen of his companions, his own portion must be small. The accuracy of his mental division would prevent him from offering to part with that share which, perhaps, a more ignorant accountant would be ready to surrender at once, without being on that account more generous. Children, who are accurate observers of the countenance, and who have a superior degree of penetration, discover very early the symptoms of displeasure, or of affection, in their friends ; they also perceive quickly the dangers of rivalry from their companions. If experience convinces them that they must lose in proportion as their companions gain, either in fame, or in favour, they will necessarily dislike them as rivals ; their hatred will be as vehement, as their love of praise and affection is ardent. Thus children, who have the most lively sympathy are, unless they be judiciously educated, the most in danger of feeling early the malevolent

passions of jealousy and envy. It is inhuman, and in every point of view unjustifiable in us, to excite these painful feelings in children, as we too often do by the careless or partial distribution of affection and applause. Exact justice will best prevent jealousy; each individual submits to justice, because each, in turn, feels the benefit of its protection. Some preceptors, with benevolent intentions, labour to preserve a perfect equality amongst their pupils, and from the fear of exciting envy in those who are inferior, avoid uttering any encomiums upon superior talents and merit. This management seldom succeeds; the truth cannot be concealed; those who feel their own superiority make painful reflections upon the injustice done to them by the policy of their tutors? those who are sensible of their own inferiority are not comforted by the courtesy and humiliating forbearance with which they are treated. It is therefore best to speak the plain truth; to give to all their due share of affection and applause; at the same time we should avoid blaming one child at the moment when we praise another; we should never put our pupils in contrast with one another, nor yet

should we deceive them as to their respective excellencies and defects. Our comparison should rather be made between what the pupil *has been*, and what he *is*, than between what he *is* and what anybody else *is not*.* By this style of praise we may induce children to become emulous of their former selves, instead of being envious of their competitors. Without deceit or affectation, we may also take care to associate general pleasure in a family with particular commendations; thus, if one boy is remarkable for prudence, and another for generosity, we should not praise the generosity of the one at the expense of the prudence of the other, but we should give to each virtue its just measure of applause. If one girl sings, and another draws, remarkably well, we may show that we are pleased with both agreeable accomplishments, without bringing them into comparison. Nor is it necessary that we should be in a desperate hurry to balance the separate degrees of praise which we distribute exactly at the same moment; because if children are sure that the reward of their

* V. Rousseau and Williams.

industry and ingenuity is secured by our justice, they will trust to us, though that reward may be for a few hours delayed. It is only where workmen have no confidence in the integrity or punctuality of their masters, that they are impatient of any accidental delay in the payment of their wages.

With the precautions which have been mentioned, we may hope to see children grow up in friendship together. The whole sum of their pleasure is much increased by mutual sympathy. This happy moral truth, upon which so many of our virtues depend, should be impressed upon the mind: it should be clearly demonstrated to the reason; it should not be repeated as an *à priori* sentimental assertion.

Those who have observed the sudden, violent, and surprising effects of emulation in public schools, will regret the want of this *power* in the intellectual education of their pupils at home. Even the acquisition of talents and knowledge ought, however, to be but a secondary consideration, subordinate to the general happiness of our pupils. If we *could* have superior knowledge upon condition that we should have a

malevolent disposition, and an irritable temper, should we, setting every other moral consideration aside, be willing to make the purchase at such a price? Let any person, desirous to see a striking picture of the effects of scholastic competition upon the moral character, look at the life of that wonder of his age the celebrated Abeillard. As the taste and manners of the present times are so different from those of the age in which he lived, we see, without any species of deception, the real value of the learning in which he excelled, and we can judge both of his acquirements, and of his character without prejudice. We see him goaded on by rivalry, and literary ambition, to astonishing exertions at one time; at another, torpid in monkish indolence: at one time we see him intoxicated with adulation; at another, listless, desponding, abject, incapable of maintaining his own self-approbation without the suffrages of those whom he despised. If his biographer* does him justice, a more selfish, irritable, contemptible, miserable being,

* Berrington's *Life of Abeillard*.

than the learned Abcillard could scarcely exist.

A philosopher,* who, if we might judge of him by the benignity of his writings, was surely of a most amiable and happy temper, has yet left us a melancholy and discouraging history of the unsociable condition of men of superior knowledge and abilities. He supposes that those who have devoted much time to the cultivation of their understandings, have habitually less sympathy, or less exercise for their sympathy, than those who live less abstracted from the world; that consequently "all their social, and all "their public affections, lose their natural "warmth and vigour," whilst their selfish passions are cherished and strengthened, being kept in constant play by literary rivalry. It is to be hoped that there are men of the most extensive learning and genius, now living, who could, from their own experience, assure us that those are obsolete observations, no longer applicable to modern

* Dr. John Gregory. *Comparative View of the State and Faculties of Man with those of the Animal World.* See vol. ii. of his *Works*, from page 100 to 114.

human nature. At all events we, who refer so much to education, are hopefully of opinion, that education can prevent these evils, in common with *almost* all the other evils of life. It would be an error, fatal to all improvement, to believe that the cultivation of the understanding impedes the exercise of the social affections. Obviously a man who secludes himself from the world, and whose whole life is occupied with abstract studies, cannot enjoy any pleasure from his social affections; his admiration of the dead is so constant, that he has no time to feel any sympathy with the living. An individual of this ruminating species is humorously delineated in Mrs. D'Arblay's *Camilla*. Men, who are compelled to unrelenting labour, whether by avarice, or by literary ambition, are equally to be pitied. They are not models for imitation; they sacrifice their happiness to some strong passion or interest. Without this ascetic abstinence from the domestic and social pleasures of life, surely persons may cultivate their understandings, and acquire, by mixing with their fellow-creatures, a variety of useful knowledge.

An ingenious theorist* supposes, that the exercise of any of our faculties is always attended with pleasure, as long as that exercise can be continued without fatigue. This pleasure, arising from the due exercise of our mental powers, he maintains to be the foundation of our most agreeable sentiments. If there be any truth in these ideas, of how many agreeable sentiments must a man of sense be capable ! the pleasures of society must to him increase in an almost incalculable proportion, because in conversation his faculties can never want subjects on which they may be amply exercised. The dearth of conversation, which every body may have felt in certain company, is always attended with mournful countenances, and every symptom of *ennui*. Indeed, without the pleasures of conversation, society is reduced to meetings of people who assemble to eat and drink, to show their fine clothes, to weary and hate one another. The sympathy of *bon vivants* is, it must be acknowledged, very lively and sincere towards each other ; but this can last only

* Vernet's *Theorie des Sentimens Agréables*.

during the festive hour, unless they revive, and prolong, by the powers of imagination, the memory of the feast. Some foreign traveller* tells us, that “every year at Naples
 “an officer of the police goes through the
 “city, attended by a trumpeter, who pro-
 “claims in all the squares and cross-ways how
 “many thousand oxen, calves, lambs, hogs,
 “&c. the Neapolitans have had the honour
 “of eating in the course of the year.” The people all listen with the most sympathetic attention to this proclamation, and are immoderately delighted at the huge amount.

A degree, and scarcely one degree, above the brute sympathy of good eaters, is that gregarious propensity which is sometimes honoured with the name of sociability. The current sympathy, or appearance of sympathy, which is to be found amongst the idle and frivolous in fashionable life, is wholly unconnected with even the idea of esteem. It is therefore pernicious to all who partake of it; it excites to no great exertions; it rewards neither useful nor amiable qualities: on the contrary, it is to

* V. Varieties of Literature, vol. i.

be obtained by vice, rather than by virtue ; by folly much more readily than by wisdom. It is the mere follower of fashion and of dissipation, and it keeps those in humour, and countenance, who ought to hear the voice of public reproach, and who might be roused by the fear of disgrace, or the feelings of shame, to exertions which should justly entitle them to the approbation and affections of honourable friends.

Young people, who are early in life content with this *convivial* sympathy, may, in the common phrase, become *very good, pleasant companions* ; but there is little chance that they should ever become any thing more, and there is great danger that they may be led into any degree of folly, extravagance, or vice, to which fashion and the voice of numbers invite. It sometimes happens, that men of superior abilities have such an indiscriminate love of applause and sympathy, that they reduce themselves to the standard of all their casual companions, and vary their objects of ambition with the opinion of the silly people with whom they chance to associate. In public life, party spirit becomes the ruling principle of men

of this character; in private life they are addicted to clubs, and associations of all sorts, in which the contagion of sympathy has a power which the sober influence of reason seldom ventures to correct. The waste of talents, and the total loss of principle to which this indiscriminate love of sympathy leads, should warn us to guard against its influence, by early education. The gregarious propensity in childhood should not be indulged without great precautions: unless their companions are well educated, we can never be reasonably secure of the conduct or happiness of our pupils: from sympathy they catch all the wishes, tastes, and ideas of those with whom they associate; and, what is still worse, they acquire the dangerous habits of resting upon the support, and of wanting the stimulus of numbers. It is, surely, far more prudent to let children feel a little *ennui* from the want of occupation and of company, than to purchase for them the juvenile pleasures of society at the expense of their future happiness.

As young people gradually acquire knowledge, they will learn to *converse*, and when

they have the habits of conversing rationally, they will not desire companions who can only chatter. They will prefer the company of friends, who can sympathize in their occupations, to the presence of ignorant idlers, who can fill up the void of ideas with nonsense and noise. Some people have a notion that the understanding and the *heart* are not to be educated at the same time; but the very reverse of this is perhaps true: neither can be brought to any perfection, unless both are cultivated together.

We should not expect premature virtues. During childhood there occur but few opportunities of exerting the virtues which are recommended in books; such as humanity and generosity.

The *humanity* of children cannot properly be said to be exercised upon animals; they are frequently extremely fond of animals; but they are not always equable in their fondness; they sometimes treat their favourites with that caprice which favourites are doomed to experience; this caprice degenerates into cruelty if it is resented by the sufferer. We must not depend merely upon the natural sensations of compassion, as pre-

servatives against cruelty; these *instinctive* feelings are strong amongst uneducated people, yet these do not restrain them from acts of cruelty. They take delight, it has been often observed, in all tragical, sanguinary spectacles, because these excite emotion, and relieve them from the listless state in which their days usually pass. It is the same with all persons, in all ranks of life, whose minds are uncultivated.* Until young people have fixed *habits* of benevolence, and a taste for occupation, perhaps it is not prudent to trust them with the care or protection of animals. Even when they are enthusiastically fond of them, they cannot by their utmost ingenuity make the animals so happy in a state of captivity as they would be in a state of liberty. They are apt to insist upon doing animals good against their will, and they are often unjust in the defence of their favourites. A boy of seven years old once knocked down his sister to prevent her from squeezing his caterpillar.†

* Can it be true that an English nobleman, in the 18th century, won a bet by procuring a man to eat a cat alive?

† See Moore's *Edward for the Boy and Larks*, an excellent story for children.

Children should not be taught to confine their benevolence to those animals which are thought beautiful ; the fear and disgust which we express at the sight of certain unfortunate animals, whom we are pleased to call ugly and shocking, are observed by children, and these associations lead to cruelty. If we do not prejudice our pupils by foolish exclamations, if they do not from sympathy catch our absurd antipathies, their benevolence towards the animal world will not be illiberally confined to favourite lap-dogs and singing-birds. From association most people think that frogs are ugly animals. L——, a boy between five and six years old, once begged his mother to come out to look at a *beautiful* animal which he had just found ; she was rather surprised to find that this beautiful creature was a frog.

If children never see others torment animals, they will not think that cruelty can be an amusement ; but they may be provoked to revenge the pain which is inflicted upon them ; and therefore we should take care not to put children in situations where they are liable to be hurt or terrified by animals. Could we possibly expect that Gulliver

should love the Brobdignagian wasp that buzzed round his cake, and prevented him from eating his breakfast? Could we expect that Gulliver should be ever reconciled to the rat against whom he was obliged to draw his sword? Many animals are to children what the wasp and rat were to Gulliver. Put bodily fear out of the case, it required all uncle Toby's benevolence to bear the buzzing of a gnat while he was eating his dinner. Children, even when they have no cause to be afraid of animals, are sometimes in situations to be provoked by them; and the nice casuist will find it difficult to do strict justice upon the offended and the offenders.

October. 2, 1796. S——, nine years old, took care of his brother H——'s hot-bed for some time, when H—— was absent from home. He was extremely anxious about his charge; he took one of his sisters to look at the hot-bed, showed her a hole where the mice came in, and expressed great hatred against the whole race. He the same day asked his mother for a bait for the mouse trap. His mother refused to give him one telling him that she did not wish he should learn to kill animals. How good-nature some-

times leads to the opposite feeling ! S——'s love for his brother's cucumbers made him *imagine* and compass the death of the mice. Children should be protected against animals, which we do not wish that they should hate ; if cats scratch them and dogs bite them, and mice devour the fruits of their industry, children must consider these animals as enemies ; they cannot love them ; and they may learn the habit of revenge from being exposed to their insults and depredations. Pythagoras himself would have insisted upon his exclusive right to the vegetables on which he was to subsist, especially if he had raised them by his own care and industry. Buffon,* notwithstanding all his benevolent philosophy, can scarcely speak with patience of his enemies the field-mice ; who, when he was trying experiments upon the culture of forest-trees, tormented him perpetually by their insatiable love of acorns. "*I was terrified,*" says he, " at the discovery of half a bushel, " and often a whole bushel, of acorns in each " of the holes inhabited by these little ani- " mals ; they had collected these acorns for

* Mem. de l'Acad. R. for the year 1742, p. 332.

“ their winter provision.” The philosopher gave orders immediately for the erection of a great number of traps, and snares baited with broiled nuts ; in less than three weeks nearly three hundred field-mice were killed *or taken prisoners*. Mankind are obliged to carry on a defensive war against the animal world. It is fortunate for us that there are butchers by profession in the world, and rat-catchers, and cats, otherwise our habits of benevolence and sympathy would be put to severe trials. Children, though they must perceive the necessity for destroying certain animals, need not be themselves executioners ; they should not conquer the natural repugnance to the sight of the struggles of pain, and the convulsions of death ; their aversion to being the cause of pain should be preserved both by principle and habit. Those who have not been habituated to the bloody form of cruelty, can never fix their eye upon her without shuddering ; even those to whom she may have in some instances been early familiarised, recoil from her appearance in any shape to which they have not been accustomed. At one of the magnificent shows, with which Pompey entertained the Roman

people for five days successively, the populace enjoyed in profusion the death of wild beasts ; no less than five hundred lions were killed ; but, on the last day, when twenty elephants were put to death, the people, unused to the sight, and to the lamentable howlings of these animals, were seized with sudden compassion ; and execrated Pompey himself for being the author of so much cruelty.

Charity to the poor is often inculcated in books for children ; but how is this virtue to be actually brought into practice in childhood ? Without proper objects of charity are selected by the parents, children have no opportunities of discovering them ; they have not sufficient knowledge of the world to distinguish truth from falsehood in the complaints of the distressed ; nor have they sufficiently enlarged views to discern the best means of doing good to their fellow-creatures. They may give away money to the poor, but they do not always feel the value of what they give : they give counters : supplied with all the necessaries and luxuries of life, they have no use for money, they feel no privation, they make no sacrifice in giving mo-

ney away, or at least none worthy to be extolled as heroic. When children grow up, they learn the value of money, their generosity will then cost them rather more effort, and yet can be rewarded only with the same expressions of gratitude, with the same blessings from the beggar, or the same applause from the spectator.

Let us put charity out of the question, and suppose that the generosity of children is displayed in making presents to their companions, still there are difficulties. These presents are usually baubles, which at the best can encourage only a frivolous taste. But we must further consider, that even generous children are apt to expect generosity equal to their own from their companions; then come tacit or explicit comparisons of the value or elegance of their respective gifts; the difficult rules of exchange and barter are to be learned; and nice calculations of *Tare and Tret* are entered into by the repentant borrowers and lenders. A sentimental too often ends in a commercial intercourse; and those who begin with the most munificent dispositions sometimes end with selfish discontent, low cunning, or disgusting osten-

tation. Whoever has carefully attended to young makers of presents, and makers of bargains, will not think this account of them much exaggerated.

“ Then what is to be done ? How are the
“ social affections to be developed ? How is
“ the sensibility of children to be tried ? How
“ is the young heart to display its most ami-
“ able feelings ? ” a sentimental preceptress
will impatiently inquire.

The amiable feelings of the heart need not be displayed ; they may be sufficiently exercised without the stimulus either of our eloquence or our applause. In madame de Silleri's account of the education of the children of the duke of Orleans, there appears rather too much sentimental artifice and management. When the duchess of Orleans was ill, the children were instructed to write “ charming notes ” from day to day, from hour to hour, to inquire how she did. Once, when a servant was going from Saint Leu to Paris, madame de Silleri asked her pupils if they had any commissions ; the little duke de Chartres said Yes ; and he gave a message about a bird-cage, but he did not recollect to write to his mother, till somebody whispered

to him that he had forgotten it. Madame de Silleri calls this childish forgetfulness a "heinous offence;" but was not it very natural that the boy should think of his bird-cage? and what mother would wish that her children should have it put into their head, to inquire after her health in the complimentary style? Another time madame de Silleri is displeased with her pupils, because they did not show sufficient sympathy and concern for her when she had a head-ache or sore throat. The exact number of messages which, consistently with the strict duties of friendship, they ought to have sent, are upon another occasion prescribed.

"I had yesterday afternoon a violent attack of the cholic, and you discovered the greatest sensibility. By the journal of M. le Brun, I find it was the duke de Montpensier who thought this morning of writing to inquire how I did. You left me yesterday in a very calm state, and there was no reason for anxiety; but, consistently with the strict duties of friendship, you ought to have given orders before you went to bed, for inquiries to be made at eight o'clock in the morning, to know whe-

“ther I had any return of my complaint
“during the night ; and you should again
“have sent at ten to learn from myself, the
“instant I awoke, the exact state of my
“health. Such are the benevolent and ten-
“der cares which a lively and sincere friend-
“ship dictates. You must accustom your-
“selves to the observance of them if you
“wish to be loved.”

Another day madame de Silleri told the duke de Chartres, that he had a very idiotic appearance, because, when he went to see his mother, his attention was taken up by two paroquets which happened to be in the room. All these reproaches and documents could not, we should apprehend, tend to increase the real sensibility and affection of children. Gratitude is one of the most certain, but one of the latest, rewards, which preceptors and parents should expect from their pupils. Those who are too impatient to wait for the gradual developement of the affections, will obtain from their children, instead of warm, genuine, enlightened gratitude, nothing but the expression of cold, constrained, stupid hypocrisy. During the process of education, a child cannot perceive

its ultimate end ; how can he judge whether the means employed by his parents, are well adapted to effect their purposes ? Moments of restraint and of privation, or, perhaps, of positive pain, must be endured by children under the mildest system of education : they must, therefore, perceive, that their parents are the immediate cause of some evils to them ; the remote good is beyond their view. And can we expect from an infant the systematic resignation of an optimist ? Belief upon trust is very different from that which arises from experience ; and no one, who understands the human heart, will expect incompatible feelings ; in the mind of a child the feeling of present pain is incompatible with gratitude. Mrs. Macaulay mentions a striking instance of extorted gratitude. A poor child, who had been taught to return thanks for every thing, had a bitter medicine given to her ; when she had drank it she curtsied, and said, "Thank you for my "good stuff." There was a mistake in the medicine, and the child died the next morning.

Children who are not sentimentally educated, often offend by their simplicity, and

frequently disgust people of impatient feelings, by their apparent indifference to things which are expected to touch their sensibility. Let us be content with nature, or rather let us never exchange simplicity for affectation. Nothing hurts young people more than to be watched continually about their feelings, to have their countenances scrutinized, and the degrees of their sensibility measured by the surveying eye of the unmerciful spectator. Under the constraint of such examinations they can think of nothing, but that they are looked at, and feel nothing but shame or apprehension: they are afraid to lay their minds open, lest they should be convicted of some deficiency of feeling. On the contrary, children who are not in dread of this sentimental inquisition speak their minds, the truth, and the whole truth, without effort or disguise: they lay open their hearts, and tell their thoughts as they arise with simplicity that would not fear to enter even "The Palace of Truth."*

A little girl, Ho——, who was not quite

* V. Le Palais de la Vérité.—Madame de GENLIS' *Veillées du Château*.

four years old, asked her mother to give her a plaything : one of her sisters had just before asked for the same thing. "I cannot give it to you both," said the mother.

Ho——. No, but I wish you to give it to me, and not to *E*——.

Mother. Don't you wish your sister to have what she wants ?

Ho——. Mother, if I say that I *don't* wish so, will you give it to me ?

Perhaps this *naïveté* might have displeased some scrupulous admirers of politeness, who could not discover in it symptoms of that independent simplicity of character, for which the child who made this speech was distinguished.

"Do you always love me?"—said a mother to her son, who was about four years old.

"Always," said the child, "except when I am asleep."

Mother. "And why do you not love me when you are asleep?"

Son. "Because I do not think of you then."

This sensible answer showed that the boy reflected accurately upon his own feelings,

and a judicious parent must consequently have a sober certainty of his affection. The thoughtless caresses of children who are never accustomed to reason are lavished alike upon strangers and friends; and their fondness of to-day may without any reasonable cause become aversion by to-morrow.

Children are often asked to tell which of their friends they love the best, but they are seldom required to assign any reason for their choice. It is not prudent to question them frequently about their own feelings; but whenever they express any decided preference, we should endeavour to *lead*, not to *drive*, them to reflect upon the reasons for their affection. They will probably at first mention some particular instance of kindness, which they have lately received from the person whom they prefer. "I like such a person because he mended my top."—"I like such another because he took me out to walk with him, and let me gather flowers." By degrees we may teach children to generalize their ideas, and to perceive that they like people for being either useful or agreeable.

The desire to return kindness by kindness

arises very early in the mind, and the hope of conciliating the good will of the powerful beings by whom they are surrounded, is one of the first wishes that appears in the minds of intelligent and affectionate children. From this sense of mutual dependance the first principles of social intercourse are deduced, and we may render our pupils either mean sycophants or useful and honourable members of society, by the methods which we use to direct their first efforts to please. It should be our object to convince them, that the exchange of mutual good offices contributes to happiness, and whilst we connect the desire to assist others with the perception of the beneficial consequences that eventually arise to themselves, we may be certain that children will never become blindly selfish, or idly sentimental. We cannot help admiring the simplicity, strength of mind, and good sense of a little girl of four years old, who, when she was put into a stage-coach with a number of strangers, looked round upon them all, and after a few minutes' silence, addressed them, with the imperfect articulation of infancy, in the following words :

“ If you’ll be good to me, I’ll be good to you.”

Whilst we were writing upon sympathy and sensibility, we met with the following apposite passage :

“ In 1765, I was,” says M. de St. Pierre, “ at Dresden, at a play acted at court ; it “ was the *Père de Famille*. The electoress “ came in with one of her daughters, who “ might be about five or six years old. An “ officer of the Saxon guards, who came “ with me to the play, whispered, ‘ That “ child will interest you as much as the “ play.’ As soon as she was seated, she “ placed both her hands on the front of the “ box, fixed her eyes upon the stage ; and “ continued with her mouth open, all attention to the motions of the actors. It was “ truly touching to see their different passions painted on her face as in a glass. “ There appeared in her countenance successively, anxiety, surprise, melancholy, “ and grief ; at length, the interest increasing in every scene, tears began to flow, “ which soon ran in abundance down her “ little cheeks ; then came agitation, sighs, “ and loud sobs ; at last they were obliged

“ to carry her out of the box, lest she
 “ should choak herself with crying. My
 “ next neighbour told me, that every time
 “ that this young princess came to a pa-
 “ thetic play, she was obliged to leave the
 “ house before the catastrophe.”

“ I have seen,” continues M. de St. Pierre,
 “ instances of sensibility still more touching
 “ amongst the children of the common peo-
 “ ple, because the emotion was not here
 “ produced by any theatrical effect. As I
 “ was walking some years ago in the Pré
 “ St. Gervais, at the beginning of winter, I
 “ saw a poor woman lying on the ground,
 “ busied in weeding a bed of sorrel; near
 “ her was a little girl, of six years old at the
 “ utmost, standing motionless, and all pur-
 “ ple with cold. I addressed myself to this
 “ woman, who appeared to be ill, and I
 “ asked her what was the matter with her.
 “ ‘ Sir,’ said she, ‘ for these three months I
 “ have suffered terribly from the rheuma-
 “ tism, but my illness troubles me less than
 “ this child; she never will leave me; if I
 “ say to her, Thou art quite frozen, go and
 “ warm thyself in the house, she answers

“ me, Alas! mamma, if I leave you, you’ll
“ certainly fall ill again !’

“ Another time, being at Marly, I went
“ to see, in the groves of that magnificent
“ park, that charming group of children who
“ are feeding with vine-leaves and grapes a
“ goat who seems to be playing with them.
“ Near this spot is an open summer-house,
“ where Louis XV., on fine days, used
“ sometimes to take refreshment. As it was
“ showery weather, I went to take shelter
“ for a few minutes. I found there three
“ children, who were much more interesting
“ than children of marble. They were two
“ little girls, very pretty, and very busily
“ employed in picking up all round the
“ summer-house dry sticks, which they put
“ into a sort of wallet which was lying upon
“ the king’s table, whilst a little, ill-clothed,
“ thin boy was devouring a bit of bread in
“ one corner of the room. I asked the
“ tallest of the children, who appeared to be
“ between eight and nine years old, what
“ she meant to do with the wood which she
“ was gathering together with so much
“ eagerness. She answered, ‘ Sir, you see

“ that little boy, he is very unhappy. He
 “ has a mother-in-law, who sends him all
 “ day long to look for wood ; when he does
 “ not bring any home, he is beaten ; when
 “ he has got any, the Swiss who stands at
 “ the entrance of the park takes it all away
 “ from him, and keeps it for himself. The
 “ boy is almost starved with hunger, and
 “ we have given him our breakfast.’ After
 “ having said these words, she and her com-
 “ panion finished filling the little wallet ;
 “ they packed it upon the boy’s shoulders,
 “ and they ran before their unfortunate
 “ friend to see that he might pass in safety.”

We have read these three anecdotes to
 several children, and have found that the
active friends of the little gatherer of sticks
 were the most admired. It is probable,
 that amongst children who have been much
 praised for expressions of sensibility, the
 young lady who wept so bitterly at the play-
 house would be preferred ; affectionate chil-
 dren will like the little girl who stood purple
 with cold beside her sick mother ; but if
 they have been well educated, they will pro-
 bably express some surprise at her motion-
 less attitude ; they will ask why she did not

try to help her mother to weed the bed of sorrel.

It requires much skill and delicacy in our conduct towards children, to preserve a proper medium between the indulging and the repressing their sensibility. We are cruel towards them when we suspect their genuine expressions of affection ; nothing hurts the temper of a generous child more than this species of injustice. Receive his expressions of kindness and gratitude with cold reserve, or a look that implies a doubt of his truth, and you give him so much pain, that you not only repress, but destroy his affectionate feelings. On the contrary, if you appear touched and delighted by his caresses, from the hope of pleasing, he will be naturally inclined to repeat such demonstrations of sensibility : this repetition should be gently discouraged, lest it should lead to affectation. At the same time, though we take this precaution, we should consider, that children are not early sensible, that affectation is either ridiculous or disgusting ; they are not conscious of doing any thing wrong by repeating what they have once perceived to be agreeable in their own, or

in the manners of others. They frequently imitate, without any idea that imitation is displeasing; as Locke observes, they only mistake the means of pleasing: we should rectify this mistake without treating it as a crime.

A little girl of five years old stood beside her mother, observing the distribution of a dish of strawberries, the first strawberries of the year; and seeing a number of people busily helping, and being helped to cream and sugar, said in a low voice, not meant to attract attention, "I like to see people "helping one another." Had the child, at this instant, been praised for this natural expression of sympathy, the pleasure of praise would have been immediately substituted in her mind, instead of the feeling of benevolence, which was in itself sufficiently agreeable; and perhaps from a desire to please, she would, upon the next favourable occasion, have repeated the same sentiment; this we should immediately call affectation; but how could the child foresee that the repetition of what we formerly liked would be offensive? We should not first extol sympathy, and then disdain affectation; our

encomiums frequently produce the faults by which we are disgusted. Sensibility and sympathy, when they have proper objects, and full employment, do not look for applause; they are sufficiently happy in their own enjoyments. Those who have attempted to teach children must have observed, that sympathy is immediately connected with all the imitative arts; the nature of this connexion, more especially in poetry and painting, has been pointed out with ingenuity and eloquence by those* whose excellence in these arts entitle their theories to our prudent attention. We shall not attempt to repeat; we refer to their observations. Sufficient occupation for sympathy may be found by cultivating the talents of young people.

Without repeating here what has been said in many other places, it may be necessary to remind all who are concerned in *female* education, that peculiar caution is necessary to manage female sensibility; to make what is called the heart a source of permanent pleasure, we must cultivate the reasoning powers

* Sir Joshua Reynolds's Discourses. Dr. Darwin's Critical Interludes in the Botanic Garden, and his chapter on Sympathy and Imitation in Zoonomia.

at the same time that we repress the enthusiasm of *fine feeling*. Women, from their situation and duties in society, are called upon rather for the daily exercise of quiet domestic virtues, than for those splendid acts of generosity, or those exaggerated expressions of tenderness, which are the characteristics of heroines in romance. Sentimental authors paint with enchanting colours all the graces and all the virtues in happy union. Afterwards, from the natural influence of association, we expect in real life to meet with virtue when we see grace, and we are disappointed, almost disgusted, when we find virtue unadorned. This false association has a double effect upon the conduct of women; it prepares them to be pleased, and it excites them to endeavour to please by adventitious charms, rather than by those qualities which merit esteem. Women, who have been much addicted to common novel-reading, are always acting in imitation of some Jemima or Almeria who never existed, and they perpetually mistake plain William and Thomas for "*My Beverly!*" They have another peculiar misfortune; they require continual great emotions to keep them

in tolerable humour with themselves ; they must have tears in their eyes, or they are apprehensive that their hearts are growing hard. They have accustomed themselves to such violent stimulus, that they cannot endure the languor to which they are subject in the intervals of delirium. Pink appears pale to the eye that is used to scarlet, and common food is insipid to the taste which has been vitiated by the high seasonings of art.

A celebrated French actress, in the wane of her charms, and who, for that reason, began to feel weary of the world, exclaimed, whilst she was recounting what she had suffered from a faithless lover, “ Ah, c’étoit le “ bon temps, j’étois bien malheureuse ! ” *

The happy age in which women can, with any grace or effect, be romantically wretched, is, even with the beautiful, but a short season of felicity. The sentimental sorrows of any female mourner, of more than thirty years standing, command but little sympathy, and less admiration ; and what other consolations are suited to sentimental sorrows ?

Women who cultivate their reasoning powers, and who acquire tastes for science and literature, find sufficient variety in life, and do not require the *stimulus* of dissipation or of romance. Their sympathy and sensibility are engrossed by proper objects, and connected with habits of useful exertion; they usually feel the affection which others profess, and actually enjoy the happiness which others describe.

CHAPTER XI.

ON VANITY, PRIDE, AND AMBITION.

WE shall not weary the reader by any common-place declamation upon these moral topics. No great subtlety of distinction is requisite to mark the differences betwixt Vanity and Pride, since those differences have been pointed out by every moralist who has hoped to please mankind by an accurate delineation of the failings of human nature. Whatever distinctions exist, or may be supposed to exist, between the characters in which pride or vanity predominates, it will readily be allowed, that there is one thing in which they both agree; they both receive pleasure from the approbation of others, and from their own. We are disgusted with the vain man, when he intemperately indulges in praise of himself, however justly he may be entitled to that praise, because he offends against those manners which we have been

accustomed to think polite, and he claims from us a greater portion of sympathy than we can afford to give him. We are not, however, pleased by the negligence with which the proud man treats us; we do not like to see that he can exist in independent happiness, satisfied with a cool, internal sense of his own merits; he loses our sympathy, because he does not appear to value it.

If we could give our pupils exactly the character we wish, what degrees of vanity and pride should we desire them to have, and how should we regulate these passions? Should we not desire, that their ambition to excel might be sufficient to produce the greatest possible exertions, directed to the best possible objects; that their opinion of themselves should be strictly just, and should never be expressed in such a manner as to offend against propriety, nor so as to forfeit the sympathy of mankind. As to the degree of pleasure which they should feel from their secret reflections upon their own meritorious conduct, we should certainly desire this to be as lasting and as exquisite as possible. A considerable portion of the happiness of life

arises from the sense of self-approbation; we should therefore secure this gratification in its utmost perfection. We must observe, that, however independent the proud man imagines himself to be of the opinions of all round him, he must form his judgment of his own merits from some standard of comparison, by some laws drawn from observation of what mankind in general, or those whom he particularly esteems, think wise or amiable. He must begin then in the same manner as the vain man, whom he despises, by collecting the suffrages of others; if he selects with perfect wisdom the opinions which are most just, he forms his character upon excellent principles, and the more steadily he abides by his first views, the more he commands and obtains respect. But if unfortunately he makes a mistake at first, his obstinacy in error is not to be easily corrected; for he is not affected by the general voice of disapprobation, nor by the partial loss of the common pleasures of sympathy. The vain man, on the contrary, is in danger, let him form his first notions of right and wrong ever so justly, of changing them when he happens to be in society with any persons

who do not agree with him in their moral opinions, or who refuse him that applause which supports his own feeble self-approbation. We must, in education, endeavour to guard against these opposite dangers; we must enlighten the understanding to give our pupils the power of forming their rules of conduct rightly, and we must give them sufficient strength of mind to abide by the principles which they have formed. When we first praise children, we must be careful to associate pleasure with those things which are really deserving of approbation. If we praise them for beauty, or for any happy expressions which entertain us, but which entertain us merely as the sprightly nonsense of childhood, we create vanity in the minds of our pupils; we give them false ideas of merit, and, if we excite them to exertions, they are not exertions directed to any valuable objects. Praise is a strong stimulus to industry, if it be properly managed; but if we give it in too large and lavish quantities early in life, we shall soon find that it loses its effect, and that the *patient* languishes for want of the excitation which custom has rendered almost essential to his existence.

We say the *patient*, for this mental languor may be considered entirely as a disease. For its cure, see the second volume of *Zoonomia*, under the article *Vanity*.

Children, who are habituated to the daily and hourly food of praise, continually require this sustenance unless they are attended to ; but we may gradually break bad habits. It is said that some animals can supply themselves at a single draught with what will quench their thirst for many days. ' The human animal may, perhaps, by education, be taught similar foresight and abstinence in the management of his thirst for flattery. Young people, who live with persons that seldom bestow praise, do not expect that stimulus, and they are content if they discover, by certain signs either in the countenance, manner, or tone of voice, of those whom they wish to please, that they are tolerably well satisfied. It is of little consequence by what language approbation be conveyed, whether by words, or looks, or by that silence which speaks with so much eloquence ; but it is of great importance that our pupils should set a high value upon the expressions of our approbation. They will

value it in proportion to their esteem and their affection for us ; we include in the word esteem a belief in our justice, and in our discernment. Expressions of affection, associated with praise, not only increase the pleasure, but they alter the nature of that pleasure ; and if they gratify vanity, they at the same time excite some of the best feelings of the heart. The selfishness of vanity is corrected by this association ; and the two pleasures of sympathy and self-complacency should never, when we can avoid it, be separated.

Children, who are well educated, and who have acquired an habitual desire for the approbation of their friends, may continue absolutely indifferent to the praise of strangers, or of *common* acquaintance ; nor is it probable that this indifference should suddenly be conquered, because the greatest part of the pleasure of praise in their mind depends upon the esteem and affection which they feel for the persons by whom it is bestowed. Instead of desiring that our pupils should entirely repress, in the company of their own family, the pleasure which they feel from the praise that is given to them by their friends, we

should rather indulge them in this natural expansion of mind ; we should rather permit their youthful vanity to display itself openly to those whom they must love and esteem, than drive them, by unreasonable severity, and a cold refusal of sympathy, into the society of less rigid observers. Those who have an aversion to vanity will not easily bear with its intemperance of tongue ; but they should consider, that much of what disgusts them is owing to the simplicity of childhood, which must be allowed time to learn that respect for the feelings of others that teaches us to restrain our own ; but we must not be in haste to restrain, lest we teach hypocrisy, instead of strength of mind, or real humility. If we expect that children should excel, and should not know that they excel, we expect impossibilities ; we expect at the same time intelligence and stupidity. If we desire that they should be excited by praise, and that at the same time they should feel no pleasure in the applause which they have earned, we desire things that are incompatible. If we encourage children to be frank and sincere, and yet, at the same time, reprove them whenever they naturally

express their opinions of themselves, or the pleasurable feelings of self-approbation, we shall counteract our own wishes. Instead of hastily blaming children for the sincere and simple expression of their self-complacency, or of their desire for the approbation of others, we should gradually point out to them that those who refrain from that display of their own perfections which we call vanity, in fact are well repaid for the constraint which they put upon themselves by the superior degree of respect and sympathy which they obtain ; that vain people effectually counteract their own wishes, and meet with contempt, instead of admiration. By appealing constantly when we praise to the judgment of the pupils themselves, we shall teach them the habit of rejudging flattery, and substitute, by insensible degrees, patient, steady confidence in themselves, for the wavering weak impatience of vanity. In proportion as any one's confidence in himself increases, his anxiety for the applause of others diminishes : people are very seldom vain of any accomplishments in which they obviously excel, but they frequently continue to be vain of those which are doubtful.

Where mankind have not confirmed their own judgment, they are restless, and continually aim either at convincing others, or themselves, that they are in the right. Hogarth, who invented a new and original manner of satirizing the follies of mankind, was not vain of this talent, but was extremely vain of his historical paintings, which, it is said, were indifferent performances. Men of acknowledged literary talents are seldom fond of amateurs ; but, if they are but half satisfied with their own superiority, they collect the tribute of applause with avidity, and without discrimination or delicacy. Voltaire has been reproached with treating strangers rudely who went to Ferney to see and admire a philosopher as a prodigy. Voltaire valued his time more than he did this vulgar admiration ; his visitors, whose understanding had not gone through exactly the same process, who had not probably been satisfied with public applause, and who set, perhaps, a considerable value upon their own praise, could not comprehend this appearance of indifference to admiration in Voltaire, especially when it was well known that he was not insensible of fame. He was at an

advanced age exquisitely anxious about the fate of one of his tragedies, and a public coronation at the theatre at Paris had power to inebriate him at eighty-four. Those who have exhausted the stimulus of wine, may yet be intoxicated by opium. The voice of numbers appears to be sometimes necessary to give delight to those who have been fatigued with the praise of individuals : but this taste for *acclamation* is extremely dangerous. A multitude of good judges seldom meet together.

By a slight difference in their manner of reasoning, two men of abilities, who set out with the same desire for fame, may acquire either pride, or vanity ; the one may value the number, the other may appreciate the judgment, of his admirers. There is something not only more wise, but more elevated ; in this latter species of select triumph ; the noise is not so great ; the music is better. “ If I listened to the music of praise,” says an historian, who obviously was not insensible to its charms, “ I was more seriously
 “ satisfied with the approbation of my *judges*.
 “ The candour of Dr. Robertson embraced
 “ his disciple. A letter from Mr. Hume

“overpaid the labours of ten years.”* Surely no one can be displeased with this last generous expression of enthusiasm ; we are not so well satisfied with Buffon, when he ostentatiously displays the epistles of a prince and an empress.†

Perhaps, by pointing out at proper opportunities, the difference in our feelings with respect to vulgar and refined vanity, we might make a useful impression upon those, who have yet their habits to form. The conversion of vanity into pride is not so difficult a process as those, who have not analysed both, might from the striking difference of their appearance imagine. By the opposite tendencies of education, opposite characters from the same original dispositions are produced. Cicero, had he been early taught to despise the applause of the multitude, would have turned away like the proud philosopher, who asked his friends what absurdity he had uttered when he heard the populace loud in

* Gibbon, *Memoirs of his Life and Writings*, p. 148. Perhaps Gibbon had this excellent line of Mrs. Barbauld's in his memory,

“And pay a life of hardship with a line.”

† See Peltier's *State of Paris* in the years 1795 and 1796.

acclamations of his speech ; and the cynic, whose vanity was seen through the holes in his cloak, might perhaps, by a slight difference in his education, have been rendered ambitious of the Macedonian's purple.

In attempting to convert vanity into pride, we must begin by exercising the vain patient in forbearance of present pleasure ; it is not enough to convince his understanding, that the advantages of proud humility are great ; he may be perfectly sensible of this, and may yet have so little command over himself, that his loquacious vanity may get the better, from hour to hour, of his better judgment. Habits are not to be instantaneously conquered by reason ; if we do not keep this fact in our remembrance, we shall be frequently disappointed in education ; and we shall, perhaps, end by thinking that reason can do nothing, if we begin by thinking that she can do every thing. We must not expect, that a vain child should suddenly break and forget all his best associations ; but we may, by a little early attention, prevent much of the trouble of curing the disease of vanity, or by skilful management, we may convert it into pride.

When children first begin to learn accomplishments, or to apply themselves to literature, those who instruct are apt to encourage them with too large a portion of praise ; *the smallest quantity of stimulus that can produce the exertion we desire, should be used* ; if we use more, we waste our power, and injure our pupil. As soon as habit has made any exertion familiar, and consequently easy, we may withdraw the original excitation, and the exertion will still continue. In learning, for instance, a new language, at first, while the pupil is in the midst of the difficulties of regular or irregular verbs, and when, in translation, a dictionary is wanted at every moment, the occupation itself cannot be very agreeable ; but we are excited by the hope, that our labour will every day diminish, and that we shall at last enjoy the entertainment of reading useful and agreeable books. Children, who have not learnt by experience, the pleasures of literature, cannot feel this hope as strongly as we do, we therefore excite them by praise ; but by degrees they begin to feel the pleasure of success and occupation ; when these are felt, we may, and ought to withdraw the unnecessary excite-

ments of praise. If we continue it, we mislead the child's mind, and whilst we deprive him of his natural reward, we give him a factitious taste. When any moral habit is to be acquired, or when we wish that our pupil should cure himself of any fault, we must employ at first strong excitement, and reward with warmth and eloquence of approbation ; when the fault is conquered, when the virtue is acquired, the extraordinary excitement should be withdrawn, and this should not be done with an air of mystery and artifice ; the child should know all that we do, and why we do it ; the sooner he learns how his own mind is managed, the better, the sooner he will assist in his own education.

Every body must have observed, that languor of mind succeeds to the intoxication of vanity ; if we can avoid the intoxication, we shall avoid the languor. Common sayings often imply those sensible observations which philosophers, when they theorize, only express in other words. We frequently hear it said to a child, " Praise spoils you ; my praise did you harm ; you can't bear praise well ; " you grow conceited ; you become idle ;

“you are good for nothing, because you
“have been too much flattered.” All these expressions show, that the consequences of over stimulating the mind by praise have been vaguely taken notice of in education ; but no general rules have been deduced from these observations. With children of different habits and temperaments the same degree of excitement acts differently, so that it is scarcely possible to fix upon any positive quantity fit for all dispositions ; the quantity must be relative ; but we may, perhaps, fix upon a criterion by which, in most cases, the proportion may be ascertained. The golden rule,* which an eminent physician has given to the medical world for ascertaining the necessary and useful quantity of stimulus for weak and feverish patients, may, with advantage, be applied in education. Whenever praise produces the intoxication of vanity, it is hurtful : whenever the appearances of vanity diminish in consequence of praise, we may be satisfied that it does good ; that it increases the pupil’s confidence in himself, and his strength

* See *Zoonomia*, vol. i. p. 99.

of mind. We repeat, that persons who have confidence in themselves may be proud, but are never vain of those qualities of which they are in certain possession ; that vanity cannot support herself without the concurring flattery of others ; pride is satisfied with his own approbation. In the education of children, who are more inclined to pride than to vanity, we must present large objects to the understanding, and large motives must be used to excite voluntary exertion. If the understanding of proud people be not early cultivated, they frequently fix upon some false ideas of honour or dignity, to which they are resolute martyrs through life. Thus the high-born Spaniards, if we may be allowed to reason from the imperfect history of national character, who associate the ideas of dignity and indolence, would rather submit to the evils of poverty, than to the imaginary disgrace of working for their bread. Volney, and the baron de Tott, give us some curious instances of the pride of the Turks, which prevents them from being taught any useful arts by foreigners. To show how early false associations are formed and supported by pride, we need but recur to the anecdote of

the child mentioned by de Tott,* who bought a pretty toy as a present for a little Turkish friend, but the child was too proud to seem pleased with the toy; the child's grandfather came into the room, saw, and was delighted with the toy; sat down on the carpet, and played with it till he broke it. We like the second childhood of the grandfather better than the premature old age of the grandson.

The self-command which the fear of disgrace insures, can produce either great virtues or great vices. Revenge and generosity are, it is said, to be found in their highest state amongst nations and individuals characterized by pride. The early objects which are associated with the idea of honour in the mind, are of great consequence; but it is of yet more consequence to teach proud minds early to bend to the power of reason, or rather to glory, in being governed by reason. They should be instructed, that the only possible means of maintaining their opinions amongst persons of sense, is to support them by unanswerable arguments. They should be taught that, to secure respect, they must

* V. De Tott's Memoirs, p. 138, a note.

deserve it; and their self-denial, or self-command, should never obtain that tacit admiration which they most value, except where it is exerted for useful and rational purposes. The constant custom of appealing, in the last resort, to their own judgment, which distinguishes the proud from the vain, makes it peculiarly necessary that the judgment, to which so much is trusted, should be highly cultivated. A vain man may be tolerably well conducted in life by a sensible friend; a proud man ought to be able to conduct himself perfectly well, because he will not accept of any assistance. It seems that some proud people confine their benevolent virtues within a smaller sphere than others; they value only their own relations, their friends, their country, or whatever is connected with themselves. This species of pride may be corrected by the same means which are used to increase sympathy. Those, who either from temperament, example, or accidental circumstances, have acquired the habit of repressing and commanding their emotions, must be carefully distinguished from the selfish and insensible. In the present times, when

the affectation of sensibility is to be dreaded, we should rather encourage that species of pride which disdains to display the affections of the heart. "You Romans triumph over your tears, and call it virtue! I triumph in my tears," says Caractacus: his tears were respectable, but in general the Roman triumph would command the most sympathy.

Some people attribute to pride all expressions of confidence in one's self: these may be offensive to common society, but they are sometimes powerful over the human mind; and, where they are genuine, mark somewhat superior in character. Much of the effect of Lord Chatham's eloquence, much of his transcendent influence in public, must be attributed to the confidence which he showed in his own superiority. "I trample upon impossibilities," was an exclamation which no inferior mind would dare to make. Would the House of Commons have permitted any one but Lord Chatham to have answered an oration by "Tell me, gentle shepherd, where?" The danger of failing, the hazard that he runs of becoming ridiculous who verges upon the

moral sublime, is taken into our account when we judge of the action, and we pay involuntary tribute to courage and success ; but how miserable is the fate of the man who mistakes his own powers, and upon trial is unable to support his assumed superiority ; mankind revenge themselves without mercy upon his ridiculous pride, eager to teach him the difference between insolence and magnanimity. Young people inclined to overrate their own talents, or to undervalue the abilities of others, should frequently have instances given to them from real life of the mortifications and disgrace to which imprudent boasters expose themselves. Where they are able to demonstrate their own abilities, they run no risk in speaking with decent confidence ; but where their success depends, in any degree, either upon their fortune, or opinion, they should never run the hazard of presumption. Modesty prepossesses mankind in favour of its possessor, and has the advantage of being both graceful and safe ; this was perfectly understood by the crafty Ulysses, who neither raised his eyes, nor stretched his sceptred hand, “ when he first rose to speak.” We do

not, however, recommend this artificial modesty ; its trick is soon discovered, and its sameness of dissimulation presently disgusts. Prudence should prevent young people from hazardous boasting ; and good nature and good sense, which constitute real politeness, will restrain them from obtruding their merits to the mortification of their companions : but we do not expect from them total ignorance of their own comparative merit. The affectation of humility, when carried to the extreme, to which all affectation is liable to be carried, appears full as ridiculous as troublesome, and offensive as any of the graces of vanity, or the airs of pride. Young people are cured of presumption by mixing with society, but they are not so easily cured of any species of affectation.

As the fair sex is more liable to the latter failing than to the former, we have endeavoured in the chapter on Female Accomplishments to point out, that the enlargement of understanding in the fair sex, which must result from their increasing knowledge, will necessarily correct the feminine foibles of vanity and affectation.

Strong, prophetic, eloquent praise, like that which the great Lord Chatham bestowed on his son, would rather inspire in a generous soul noble emulation, than paltry vanity. "On this boy," said he, laying his hand upon his son's head, "descends my mantle, "with the double portion of my spirit!" Philip's praise of his son Alexander, when the boy rode the unmanageable horse,* is another instance of the kind of praise capable of exciting ambition.

As to ambition, we must decide what species of ambition we mean before we can determine whether it ought to be encouraged or repressed; whether it should be classed amongst virtues or vices; that is to say, whether it adds to the happiness or the misery of human creatures. "The inordinate desire of fame," which often destroys the lives of millions when it is connected with ideas of military enthusiasm, is justly classed amongst the "*diseases of volition*:" for its description and cure we refer to *Zoonomia*, vol. ii. Achilles will there appear to his admirers, perhaps, in a new light.

* V. Plutarch.

The ambition to rise in the world usually implies a mean, sordid desire of riches, or what are called honours, to be obtained by the common arts of political intrigue, by cabal to win popular favour, or by address to conciliate the patronage of the great. The experience of those who have been governed during their lives by this passion, if passion it may be called, does not show that it can confer much happiness either in the pursuit or attainment of its objects. See Bubb Doddington's *Diary*, a most useful book, a journal of the petty anxieties, and constant dependence, to which an ambitious courtier is necessarily subjected. See also Mirabeau's "*Secret History of the Court of Berlin*" for a picture of a man of great abilities degraded by the same species of low unprincipled competition. We may find, in these books it is to be hoped, examples which will strike young and generous minds, and which may inspire them with contempt for the objects and the means of vulgar ambition. There is a more noble ambition, by which the enthusiastic youth, perfect in the theory of all the virtues, and warm with yet unextinguished benevolence,

is apt to be seized ; his heart beats with the hope of immortalizing himself by noble actions ; he forms extensive plans for the improvement and the happiness of his fellow-creatures ; he feels the want of power to carry these into effect ; power becomes the object of his wishes. In the pursuit of this object how are his feelings changed ? Mr. Neckar, in the preface to his work on French Finance,* paints, with much eloquence, and with an appearance of perfect truth, the feelings of a man of virtue and genius, before and after the attainment of political power. The moment when a minister takes possession of his place, surrounded by crowds and congratulations, is well described ; and the succeeding moment, when clerks with immense portfolios enter, is a striking contrast. Examples from romance can never have such a powerful effect upon the mind as those which are taken from real life ; but in proportion to the just and lively representation of situations, and passions resembling reality, fictions may convey useful, moral lessons. In the *Cyropædia*, there is an admirable

* Neckar de l'Administration des Finances de la France, vol. i. p. 98.

description of the day spent by the victorious Cyrus giving audience to the unmanageable multitude, after the taking of Babylon had accomplished the fulness of his ambition.*

It has been observed, that these examples of the insufficiency of ambition seldom make any lasting impression upon the minds of the ambitious. This may arise from two causes ; from the reasoning faculties not having been sufficiently cultivated, or from the habits of ambition being formed before proper examples are presented to the judgment for comparison. Some ambitious people, when they reason coolly, acknowledge and feel the folly of their pursuits, but still from the force of habit they act immediately in obedience to the motives which they condemn : others, who have never been accustomed to reason firmly, believe themselves to be in the right in the choice of their objects ; and they cannot comprehend the arguments which are used by those who have not the same way of thinking as themselves. If we fairly place facts before young people, who have been habituated to reason, and who have not yet

* *Cyropædia*, vol. ii. p. 303.

been inspired with the passion, or enslaved by the habits of vulgar ambition, it is probable that they will not be easily effaced from the memory, and that they will influence the conduct through life.

It sometimes happens to men of a sound understanding, and a philosophic turn of mind, that their ambition decreases with their experience. They begin perhaps with some ardour an ambitious pursuit, but by degrees they find the pleasure of the occupation sufficient without the fame, which was their original object. This is the same process which we have observed in the minds of children with respect to the pleasures of literature, and the taste for sugar-plums.

Happy the child who can be taught to improve himself without the stimulus of sweetmeats! Happy the man who can preserve activity without the excitementsof ambition!

CHAPTER XII.

BOOKS.

THE first books which are now usually put into the hands of a child, are Mrs. Barbauld's Lessons; they are by far the best books of the kind that have ever appeared; those only who know the difficulty, and the importance of such compositions in education, can sincerely rejoice, that the admirable talents of such a writer have been employed in such a work. We shall not apologize for offering a few remarks on some passages in these little books, because we are convinced that we shall not offend.

Lessons for children from three to four years old should, we think, have been lessons for children from four to five years old; few read, or ought to read, before that age.

"Charles shall have a pretty new lesson."

In this sentence the words pretty and new

are associated, but they represent ideas which ought to be kept separate in the mind of a child. The love of novelty is cherished in the minds of children by the common expressions that we use to engage them to do what we desire. "You shall have a *new* whip, a *new* hat," are improper modes of expression to a child. We have seen a boy who had literally twenty new whips in one year; and we were present when his father, to comfort him when he was in pain, went out to buy him a *new* whip; though he had two or three scattered about the room.

The description, in the first part of Mrs. Barbauld's *Lessons*, of the naughty boy who tormented the robin, and who was afterwards supposed to be eaten by bears, is more objectionable than any in the book: the idea of killing is in itself very complex; and, if explained, serves only to excite terror; and how can a child be made to comprehend why a cat *should* catch mice, and not kill birds? or why should this species of honesty be expected from an animal of prey?

"I want my dinner."

Does Charles take it for granted, that what he eats is his own, and that he *must*

have his dinner? These and similar expressions are words of course; but young children should not be allowed to use them: if they are permitted to assume the tone of command, the feelings of impatience and ill-temper quickly follow, and children become the little tyrants of a family. Property is a word of which young people have general ideas, and they may with very little trouble be prevented from claiming things to which they have no right. Mrs. Barbauld has judiciously chosen to introduce a little boy's daily history in these books; all children are extremely interested for Charles, and they are very apt to expect that every thing which happens to him is to happen to them; they believe that every thing he does is right, therefore his biographer should, in another edition, revise any of his expressions which may mislead the future tribe of his little imitators. All the passages which might have been advantageously omitted in these excellent little books, have been carefully obliterated before they were put into the hands of children, by a mother who knew the danger of early false associations.

“ Little boys don’t eat butter.”

“ Nobody wears a hat in the house.”

This is a very common method of speaking, but it certainly is not proper towards children. Affirmative sentences should always express real facts. Charles must know that some little boys do eat butter; and that some people wear their hats in their house. This mode of expression, “ Nobody does that !” “ Every body does this !” lays the foundation for prejudice in the mind. This is the language of fashion, which, more than conscience, makes cowards of us all.

“ I want some wine.”

Would it not be better to tell Charles in reply to this speech, that wine is not good for him, than to say, “ Wine for little boys !” “ I never heard of such a thing !” If Charles were to be ill, and it should be necessary to give him wine, or were he to see another child drink it, he would lose confidence in what was said to him. We should be careful of our words, if we expect our pupils to have confidence in us; and if they have not, we need not attempt to educate them.

“ The moon shines at night when the sun
“ is gone to bed.”

When the sun is out of sight, would be more correct, though not so pleasing perhaps to the young reader. It is very proper to teach a child, that when the sun disappears, when the sun is below the horizon, it is the time when most animals go to rest; but we should not do this by giving so false an idea as that the sun is gone to bed. Every thing relative to the system of the universe is above the comprehension of a child; we should, therefore, be careful to prevent his forming erroneous opinions. We should wait for a riper period of his understanding before we attempt positive instruction upon abstract subjects.

The enumeration of the months in the year, the days in the week, of metals, &c. are excellent lessons for a child who is just beginning to learn to read. The classification of animals into quadrupeds, bipeds, &c. is another useful specimen of the manner in which children should be taught to generalize their ideas. The pathetic description of the poor timid hare running from the hunters, will leave an impression upon the young and humane heart, which may perhaps prevent much cruelty. The poetic beauty and elo-

quent simplicity of many of Mrs. Barbauld's Lessons cultivate the imagination of children and their taste, in the best possible manner.

The description of the white swan, with her long arched neck, "winning her easy way through the waters," is beautiful; so is that of the nightingale, singing upon her lone bush by moonlight. Poetic descriptions of real objects are well suited to children; apostrophe and personification they understand, but all allegoric poetry is difficult to manage for them, because they mistake the poetic attributes for reality, and they acquire false and confused ideas. With regret children close Mrs. Barbauld's little books, and parents become yet more sensible of their value, when they perceive that none can be found immediately to supply their place, or to continue the course of agreeable ideas which they have raised in the young pupil's imagination.

"Evenings at Home" do not immediately join to Lessons for Children from Three to Four Years Old: and we know not where to find any books to fill the interval properly. The popular character of any book is easily learned, and its general merit easily ascer-

tained : this may satisfy careless, indolent tutors, but a more minute investigation is necessary to parents who are anxious for the happiness of their family, or desirous to improve the art of education. Such parents will feel it to be their duty to look over every page of a book before it is trusted to their children ; it is an arduous task, but none can be too arduous for the enlightened energy of parental affection. We are acquainted with the mother of a family who has never trusted any book to her children, without having first examined it herself with the most scrupulous attention ; her care has been repaid with that success in education, which such care can alone ensure. We have several books before us marked by her pencil, and volumes which having undergone some necessary operations by her scissars, would, in their mutilated state, shock the sensibility of a nice librarian. But shall the education of a family be sacrificed to the beauty of a page, or even to the binding of a book ? Few books can safely be given to children without the previous use of the pen, the pencil, and the scissars. In the books which we have before us, in their corrected

state we see sometimes a few words blotted out, sometimes half a page, sometimes many pages are cut out. In turning over the leaves of "The Children's Friend," we perceive, that the ages at which the stories should be read have been marked ; and we see that different stories have been marked with the initials of different names by this cautious mother, who considered the temper and habits of her children, as well as their ages.

As far as these notes refer peculiarly to her own family, they cannot be of use to the public ; but the principles which governed a judicious parent in her selection, must be capable of universal application, and we shall, therefore, endeavour to explain them.

It may be laid down as a first principle, that we should preserve children from the knowledge of any vice, or any folly, of which the idea has never yet entered their minds, and which they are not necessarily disposed to learn by early example. Children, who have never lived with servants, who have never associated with ill-educated companions of their own age, and who in their own family have heard nothing but good conversation, and seen none but good examples,

will, in their language, their manners, and their whole disposition, be not only free from many of the faults common amongst children, but they will absolutely have no idea that there are such faults. The language of children, who have heard no language but what is good, must be correct. On the contrary, those who hear a mixture of low and high vulgarity before their own habits are fixed, must, whenever they speak, continually blunder ; they have no rule to guide their judgment in their selection from the variety of dialects which they hear ; probably they may often be reproved for their mistakes, but these reproofs will be of no avail, whilst the pupils continue to be puzzled between the example of the nursery and of the drawing-room. It will cost much time and pains to correct these defects, which might have been with little difficulty prevented. It is the same with other bad habits. Falsehood, caprice, dishonesty, obstinacy, revenge, and all the train of vices, which are the consequences of mistaken or neglected education, which are learned by bad example, and which are not inspired by nature, need scarcely be known to children whose minds have from

their infancy been happily regulated. Such children should be sedulously kept from contagion ; their minds are untainted ; they are safe in that species of ignorance which alone can deserve the name of bliss. No books should be put into the hands of this happy class of children, but such as present the best models of virtue : there is no occasion to shock them with caricatures of vice. Such caricatures they will not even understand to be well drawn, because they are unacquainted with any thing like the originals. Examples to deter them from faults to which they have no propensity must be useless, and may be dangerous ; for the same reason that a book, written in bad language, should never be put into the hands of a child who speaks correctly ; a book exhibiting instances of vice should never be given to a child who thinks and acts properly. The love of novelty and of imitation is so strong in children, that even for the pleasure of imitating characters described in a book, or actions which strike them as singular, they often commit real faults.

To this danger of catching faults by sympathy, children of the greatest simplicity are

perhaps, the most liable, because they least understand the nature and consequences of the actions which they imitate.

During the age of imitation, our pupils should not be exposed to the influence of any bad examples till their habits are formed, and till they have not only the sense to choose, but the fortitude to abide by their own choice. It may be said, that “children
“ must know that vice exists; that, even
“ amongst their own companions, there are
“ some who have bad dispositions; they
“ cannot mix even in the society of children
“ without seeing examples which they ought
“ to be prepared to avoid.”

These remarks are just with regard to pupils who are intended for a public school, and no great nicety in the selection of their books is necessary; but we are now speaking of those who are to be brought up in a private family. Why should they be prepared to mix in the society of those who have bad habits or bad dispositions? Children should not be educated for the society of children; nor should they live in that society during their education. We must not expect from them premature prudence, and all the social

virtues, before we have taken any measures to produce these virtues, or this tardy prudence. In private education there is little chance that one error should balance another; the experience of the pupil is much confined; the examples which he sees are not so numerous and various as to counteract each other. Nothing, therefore, must be expected from the counteracting influence of opposing causes; nothing should be left to chance. Experience must preserve one uniform tenor, and examples must be selected with circumspection. The less children associate with companions of their own age, and the less they know of the world, the stronger their taste for literature, the more forcible will be the impression that will be made upon them by the pictures of life, and the characters and sentiments which they meet with in books. Books for such children ought to be *sifted* by an academy* of enlightened parents.

Without particular examples, the most obvious truths are not brought home to our business. We shall select a few examples

* V. Academie della Crusca.

from a work of high and deserved reputation, from a work which we much admire, "Berquin's Children's Friend." We do not mean to criticise this work as a literary production, but simply to point out to parents, that, even in the best books for children, much must still be left to the judgment of the preceptor, much in the choice of stories, and particular passages suited to different pupils.

In "The Children's Friend," there are several stories well adapted to one class of children, but entirely unfit for another. In the story called the Hobgoblin, Antonia, a little girl, "who has been told a hundred foolish stories by her maid, particularly one about a black-faced goblin," is represented as making a lamentable outcry at the sight of a chimney-sweeper; first, she runs for refuge to the kitchen, the last place to which she should run; then to the pantry; thence she jumps out of the window, "half dead with terror," and in the *elegant* language of the translator, *almost splits her throat, with crying out Help! Help!* In a few minutes she discovers her error, is heartily ashamed, and "ever afterwards Antonia

“ was the first to laugh at silly stories, told
“ by silly people, of hobgoblins, and the
“ like, to fright her.”

For children who have had the misfortune to have heard the hundred foolish stories of a foolish maid, this apparition of the chimney-sweeper is well managed ; though, perhaps, ridicule might not effect so sudden a cure in all cases as it did in that of Antonia. By children who have not acquired terrors of the black-faced goblin, and who have not the habit of frequenting the kitchen and the pantry, this story should never be read.

“ The little miss deceived by her maid,” who takes mamma’s keys out of her drawers, and who steals sugar and tea for her maid, that she may have the pleasure of playing with a cousin whom her mother had forbidden her to see, is not an example that need be introduced into any well-regulated family. The picture of Amelia’s misery is drawn by the hand of a master : terror and pity, we are told by the tragic poets, purify the mind ; but there are minds that do not require this species of purification. Powerful antidotes are necessary to combat powerful poisons ; but

where no poison has been imbibed, are not antidotes more dangerous than useful?

The young gentlemen who cheat at cards, and who pocket silver fish, should have no admittance any where. It is not necessary to put *children* upon their guard against associates whom they are not likely to meet; nor need we introduce the vulgar and mischievous schoolboy to any but schoolboys. Martin, who throws squibs at people in the street, who fastens rabbits' tails behind their backs, who fishes for their wigs, who sticks up pins in his friend's chairs, who carries a hideous mask in his pocket to frighten little children, and who is himself frightened into repentance by a spectre with a speaking trumpet, is an objectionable, though an excellent dramatic character. The part of the spectre is played by the groom: this is ill-contrived in a drama for children; grooms should have nothing to do with their entertainments; and Cæsar, who is represented as a pleasing character, should not be supposed to make the postillion a party in his inventions.

"A good heart compensates for many indiscretions" is a dangerous title for a

play for young people: because *many* is an indefinite term; and in settling how many, the calculations of parents and children may vary materially. This little play is so charmingly written, the character of the imprudent and generous Frederick is so likely to excite imitation, that we must doubly regret his intimacy with the coachman, his running away from school, and drinking beer at an alehouse in a fair. The coachman is an excellent old man; he is turned away for having let master Frederick mount his box, assume the whip, and overturn a handsome carriage. Frederick, touched with gratitude and compassion, gives the old man all his pocket-money, and sells a watch and some books to buy clothes for him. The motives of Frederick's conduct are excellent, and as they are misrepresented by a treacherous and hypocritical cousin, we sympathize more strongly with the hero of the piece; and all his indiscretions appear, at least, amiable defects. A nice observer* of the human heart says, that we are never inclined to cure ourselves of any defect which makes us

* Marmontel. "On ne se guérit pas d'un défaut qui plait."

agreeable. Frederick's real virtues will not, probably, excite imitation so much as his imaginary excellencies. We should take the utmost care not to associate in the mind the ideas of imprudence, and of generosity ; of hypocrisy, and of prudence : on the contrary, it should be shown that prudence is necessary to real benevolence ; that no virtue is more useful, and consequently more respectable, than justice. These homely truths will never be attended to as the counter-check moral of an interesting story ; stories which require such morals should therefore be avoided.

It is to be hoped, that select parts of "The Children's Friend," translated by some able hand, will be published hereafter for the use of private families. Many of the stories, to which we have ventured to object, are by no means unfit for schoolboys, to whom the characters which are most exceptionable cannot be new. The vulgarity of language which we have noticed is not to be attributed to M. Berquin, but to his wretched translator. *L'Ami des Enfants* is, in French, most elegantly written. The Little Canary Bird, Little George, The Talkative Little

Girl, The Four Seasons, and many others, are excellent both in point of style and dramatic effect ; they are exactly suited to the understanding of children, and they interest without any improbable events, or unnatural characters.

In fiction it is difficult to avoid giving children false ideas of virtue, and still more difficult to keep the different virtues in their due proportions. This should be attended to with care in all books for young people ; nor should we sacrifice the understanding to the enthusiasm of eloquence, or the affectation of sensibility. Without the habit of reasoning, the best dispositions can give us no solid security for happiness, therefore we should early cultivate the reasoning faculty, instead of always appealing to the imagination. By sentimental persuasives a child may be successfully governed for a time, but no power can continue the delusion long. The reasoning in the stories of " Joseph ;" * " the " Flower that never fades ;" and " a Competence is best," appear to be of the sentimental kind. Henry gets amongst a rabble of boys in a village to tease a poor man of the name

* Berquin.

of Joseph, who has the misfortune to be out of his senses. Henry's father, in a sentimental conversation, attempts to convince him of the folly and wickedness of his conduct; it is so managed, that the boy's conscience is alarmed, and his understanding has no share in his penitence. He asks pardon of heaven, but presently he joins the rabble rout again, and exasperates the poor madman, who throws a stone at his tormentors, which wounds Henry's cheek, and nearly cuts off his ear. In this condition he is carried home to his father, who tells him that this is a judgment for his crime. "How comes it," says the bleeding boy, "that the stone hit my head alone, when all the rest of my companions are more in fault than I?" "Because," answers his father, "you know better than they did that you were doing wrong." This method of reasoning will not make children conscientious, because whenever they escape *judgments*, they will imagine that they do not merit punishment; and the stone does not always hit the guilty head. The father's answer to his son should have been "I cannot tell why the stone hit your head, but I am sure that you deserved

“ it more than your companions, because “ you knew better than they did that you “ were doing wrong.” In “ the Flower that “ never fades,” a weeping governess talks to her pupil in such a strain about a fault so horrid that she cannot bring herself to name it; that the child becomes dumb, trembles, sighs, and at last, “ *falls, half swooning as “ it were, beside a verdant hillock.*” This “ deed without a name” proves to be a little childish vanity, which had made the young lady talk in too decisive a tone of voice at breakfast upon some historical point, show her writing with an air of triumph in her eyes, and put Miss Elizabeth out by keeping bad time on the piano-forte. Mademoiselle’s eloquence appears too pathetic for the occasion, and though it “ pierced the heart of the “ tender Emily,” it might not have the same effect on persons of a more phlegmatic temperament. An appeal to the affections of a child should be made only on great emergencies.

In the dialogue upon this maxim, “ that “ a competence is best,” the reasoning of the father is not a match for that of the son; by using less eloquence, the father might

have made out his case much better. The boy sees that many people are richer than his father, and perceiving that their riches procure a great number of conveniences and comforts for them, he asks why his father, who is as good as these opulent people, should not also be as rich. His father tells him that he is rich, that he has a large garden and a fine estate; the boy asks to see it, and his father takes him to the top of a high hill, and showing him an extensive prospect, says to him, "All this is my estate." The boy cross-questions his father, and finds out that it is not his estate, but that he may enjoy the pleasure of looking at it, and that he can buy wood when he wants it for firing; venison, without hunting the deer himself; fish, without fishing; and butter, without possessing all the cows that graze in the valley; therefore he calls himself master of the woods, the deer, the herds, the huntsmen, and the labourers that he beholds. This is poetic philosophy,* but it is not sufficiently accurate for a child; it would confound his ideas of property, and it would be imme-

* V. Hor. 2 Epist. lib. ii.

diately contradicted by his experience. The father's reasoning is perfectly good, and well adapted to his pupil's capacity, when he asks "whether he should not require a superfluous appetite to enjoy superfluous dishes at his meals." In returning from his walk, the boy sees a mill that is out of repair, a meadow that is flooded, and a quantity of hay spoiled; he observes that the owners of these things must be sadly vexed by such accidents, and his father congratulates himself upon their not being his property. Here is a direct contradiction; for a few minutes before he had asserted that they belonged to him. Property is often the cause of much anxiety to its possessor; but the question is, whether the pains, or the pleasures of possessing it predominate; if this question could not be fully discussed, it should not be partially stated. To silence a child in argument is easy, to convince him is difficult; sophistry or wit should never be used to confound the understanding. Reason has equal force from the lips of the giant and of the dwarf.

These minute criticisms may appear invidious, but it is hoped that they will be considered only as illustrations of general prin-

ciples; illustrations necessary to our subject. We have chosen M. Berquin's work because of its universal popularity; probably all the examples which have been selected are in the recollection of most readers, or at least it is easy to refer to them, because "The Children's Friend" is to be found in every house where there are any children. The principles by which we have examined Berquin may be applied to all books of the same class. The superior merit of Sandford and Merton has long been well known to the public; Madame de Silleri's Theatre of Education; and her Tales of the Castle; Madame de la Fite's Tales and Conversations; Mrs. Smith's Rural Walks, with many other popular books for children, would deserve a separate analysis, if literary criticism were our object. A critic once, with indefatigable ill-nature, picked out all the faults of a beautiful poem, and presented them to Apollo. The god ordered a bushel of his best Par-nassian wheat to be carefully winnowed, and he presented the critic with the chaff. Our wish is to separate the small portion of what is useless from the excellent nutriment contained in the books we have mentioned.

With respect to sentimental stories, and books of mere entertainment, we must remark, that they should be sparingly used, especially in the education of girls. This species of reading cultivates what is called the heart prematurely, lowers the tone of the mind, and induces indifference for those common pleasures and occupations which, however trivial in themselves, constitute by far the greatest portion of our daily happiness. Stories are the novels of childhood. We know, from common experience, the effects which are produced upon the female mind by immoderate novel-reading. To those who acquire this taste, every object becomes disgusting which is not in an attitude for poetic painting : a species of moral picturesque is sought for in every scene of life, and this is not always compatible with sound sense, or with simple reality. Gainsborough's country girl, as it has been humorously* remarked, is "a much more picturesque object than a girl neatly dressed in a clean white frock ; but for this reason are all children "to go in rags ?" A tragedy heroine, weep-

* V. a Letter of Mr. Wyndham's to Mr. Repton, in Repton on Landscape Gardening.

ing, swooning, dying, is a moral-picturesque object; but the frantic passions, which have the best effect upon the stage, might, when exhibited in domestic life, appear to be drawn upon too large a scale to please. The difference between reality and fiction is so great, that those who copy from any thing but nature are continually disposed to make mistakes in their conduct, which appear ludicrous to the impartial spectator. Pathos depends on such nice circumstances, that domestic, sentimental distresses are in a perilous situation; the sympathy of their audience is not always in the power of the fair performers. Frenzy itself may be turned to farce.* “*Enter the princess mad, in “white satin; and her attendant mad, in “white linen.”*

Besides the danger of creating a romantic taste, there is reason to believe, that the species of reading to which we object has an effect directly opposite to what it is intended to produce. It diminishes, instead of increasing, the sensibility of the heart; a combination of romantic imagery is requisite

* The Critic,

to act upon the associations of sentimental people, and they are virtuous only when virtue is in perfectly good taste. An eloquent philosopher* observes, that in the description of scenes of distress in romance and poetry the distress is always made *elegant*; the imagination, which has been accustomed to this delicacy in fictitious narrations, revolts from the disgusting circumstances which attend real poverty, disease, and misery; the emotions of pity, and the exertions of benevolence, are consequently repressed precisely at the time when they are necessary to humanity.

With respect to pity, it is a spontaneous natural emotion, which is strongly felt by children; but they cannot properly be said to feel benevolence till they are capable of reasoning. Charity must in them be a double virtue; they cannot be competent judges as to the general utility of what they give. Persons of the most enlarged understanding find it necessary to be extremely cautious in charitable donations, lest they should do more harm than good. Children

* Professor Stuart.

cannot see beyond the first link in the chain which holds society together; at the best, then, their charity can be but a partial virtue. But in fact children have nothing to give; they think that they give when they dispose of the property of their parents; they suffer no privation by this sort of generosity, and they learn ostentation instead of practising self-denial. Berquin, in his excellent story of "The Little Needle Woman," has made the children give their own work; here the pleasure of employment is immediately connected with the gratification of benevolent feelings; their pity is not merely passive, it is active and useful.

In fictitious narratives affection for parents, and for brothers and sisters, is often painted in agreeable colours, to excite the admiration and sympathy of children. Caroline, the charming little girl who gets upon a chair to wipe away the tears that trickle down her elder sister's cheek when her mother is displeased with her,* forms a natural and beautiful picture; but the desire to imitate Caroline must produce affectation. All the

* Berquin.

simplicity of youth is gone, the moment children perceive that they are extolled for the expression of fine feelings and fine sentiments. Gratitude, esteem, and affection, do not depend upon the table of consanguinity ; they are involuntary feelings, which cannot be raised at pleasure by the voice of authority ; they will not obey the dictates of interest ; they secretly despise the anathemas of sentiment. Esteem and affection are the necessary consequences of a certain course of conduct, combined with certain external circumstances, which are, more or less, in the power of every individual. To arrange these circumstances prudently, and to pursue a proper course of conduct steadily, something more is necessary than the transitory impulse of sensibility or of enthusiasm.

There is a class of books which amuse the imagination of children without acting upon their feelings. We do not allude to fairy tales, for we apprehend that these are not now much read, but we mean voyages and travels ; these interest young people universally. Robinson Crusoe, Gulliver, and the three Russian Sailors who were cast away upon the coast of Norway, are general favou-

rites. No child ever read an account of a shipwreck, or even a storm, without pleasure. A desert island is a delightful place, to be equalled only by the skating land of the reindeer, or by the valley of diamonds in the Arabian Tales. Savages, especially if they be cannibals, are sure to be admired ; and the more hair-breadth escapes the hero of the tale has survived, and the more marvellous his adventures, the more sympathy he excites.

Will it be thought to proceed from a spirit of contradiction, if we remark, that this species of reading should not early be chosen for boys of an enterprising temper, unless they are intended for a sea-faring life, or for the army ? The taste for adventure is absolutely incompatible with the sober perseverance necessary to success in any other liberal profession. To girls, this species of reading cannot be as dangerous as it is to boys ; girls must soon perceive the impossibility of their rambling about the world in quest of adventures ; and where there appears an obvious impossibility in gratifying any wish, it is not likely to become, or at least to continue, a torment to the imagination. Boys, on the

contrary, from the habits of their education, are prone to admire and to imitate every thing like enterprise and heroism. Courage and fortitude are the virtues of men, and it is natural that boys should desire, if they believe that they possess these virtues, to be placed in those great and extraordinary situations which can display them to advantage. The taste for adventure is not repressed in boys by the impossibility of its indulgence, the world is before them, and they think that fame promises the highest prize to those who will most boldly venture in the lottery of fortune : the rational probability of success few young people are able, fewer still are willing, to calculate ;* and the calculations of prudent friends have little power over their understandings, or at least over their imagination ; the part of the understanding which is most likely to decide their conduct. From general maxims we cannot expect that young people should learn much prudence ; each individual admits the propriety of the rule, yet believes himself to be a privileged exception. Where any prize is supposed to

* Smith. Essay on the Wealth of Nations.

be in the gift of fortune, every man, or every young man, takes it for granted that he is a favourite, and that it will be bestowed upon him. The profits of commerce and of agriculture, the profits of every art and profession, can be estimated with tolerable accuracy ; the value of activity, application, and abilities, can be respectively measured by some certain standard. Modest, or even prudent people, will scruple to rate themselves in all of these qualifications superior to their neighbours ; but every man will allow that, in point of good fortune, at any game of chance, he thinks himself upon a fair level with every other competitor.

When a young man deliberates upon what course of life he shall follow, the patient drudgery of a trade, the laborious, mental exertions requisite to prepare him for a profession, must appear to him in a formidable light, compared with the alluring prospects presented by an adventuring imagination. At this time of life it will be too late suddenly to change the taste ; it will be inconvenient, if not injurious, to restrain a young man's inclinations by force or authority ; it will be imprudent, perhaps fatally imprudent,

to leave them uncontrolled. Precautions should therefore be taken long before this period, and the earlier they are taken the better. It is not idle refinement to assert, that the first impressions which are made upon the imagination, though they may be changed by subsequent circumstances, yet are discernible in every change, and are seldom entirely effaced from the mind, though it may be difficult to trace them through all their various appearances. A boy, who at seven years old longs to be Robinson Crusoe, or Sinbad the sailor, may at seventeen retain the same taste for adventure and enterprise, though mixed, so as to be less obvious, with the incipient passions of avarice and ambition ; he has the same dispositions modified by a slight knowledge of real life, and guided by the manners and conversation of his friends and acquaintance. Robinson Crusoe and Sinbad will no longer be his favourite heroes ; but he will now admire the soldier of fortune, the commercial adventurer, or the nabob who has discovered in the east the secret of Aladdin's wonderful lamp, and who has realized the treasures of Aboulcasem.

The history of realities written in an entertaining manner appears not only better suited to the purposes of education, but also more agreeable to young people than improbable fictions. We have seen the reasons why it is dangerous to pamper the taste early with mere books of entertainment; to voyages and travels we have made some objections. Natural history is a study particularly suited to children: it cultivates their talents for observation, applies to objects within their reach, and to objects which are every day interesting to them. The histories of the bee, the ant, the caterpillar, the butterfly, the silk-worm, are the first things that please the taste of children, and these are the histories of realities.

No one can be so injudicious, or so unjust, as to class the excellent "Evenings at Home" amongst books of mere entertainment. Upon a close examination, it appears to be the best book for young people from seven to ten years old, that has yet appeared. We shall not pretend to enter into a minute examination of it; because, from what we have already said, parents can infer our sentiments, and we wish to avoid tedious, unnecessary detail.

We shall, however, just observe, that the lessons on natural history, on metals, and on chemistry, are particularly useful, not so much from the quantity of knowledge which they contain, as by the agreeable manner in which it is communicated; the mind is opened to extensive views, at the same time that nothing above the comprehension of children is introduced. The mixture of moral and scientific lessons is happily managed so as to relieve the attention; some of the moral lessons contain sound argument, and some display just views of life. “Perseverance against Fortune,” “The Price of Victory,” “Eyes and no Eyes,” have been generally admired as much by children as by parents.

The “Conversations d’Emile,” are elegantly written, and the characters of the mother and child admirably well preserved. White of Selborne’s Naturalist’s Calendar we can recommend with entire approbation: it is written in a familiar, yet elegant style; and the journal form gives it that air of reality, which is so agreeable and interesting to the mind.

Smellie’s Natural History is a useful, en-

tertaining book ; but it *must* be carefully looked over, and many pages and half pages must be entirely sacrificed. And here one general caution may be necessary. It is hazarding too much to make children promise not to read parts of any book which is put into their hands ; when the book is too valuable in a parent's estimation to be cut or blotted, let it not be given to children when they are alone : in a parent's presence there is no danger, and the children will acquire the habit of reading the passages that are selected without feeling curiosity about the rest. As young people grow up they will judge of the selections that have been made for them ; they will perceive why such a passage was fit for their understanding at one period, which they could not have understood at another. If they are *never* forced to read what is tiresome, they will anxiously desire to have passages selected for them, and they will not imagine that their parents are capricious in these selections ; but they will (we speak from experience), be sincerely grateful to them for the time and trouble bestowed in procuring their literary amusements.

When young people have established their character for truth and exact integrity, they should be entirely trusted with books as with every thing else. A slight pencil-line at the side of the page will then be all that is necessary to guide them to the best parts of any book. Suspicion would be as injurious, as too easy a faith is imprudent: confidence confirms integrity; but the habits of truth must be formed before dangerous temptations are presented. We intended to have given a list of books, and to have named the pages in several authors, which have been found interesting to children from seven to nine or ten years old. The Reviews, The Annual Registers, Enfield's Speaker, *Elegant Extracts*, The Papers of the Manchester Society, The French Academy of Sciences, Priestley's History of Vision, and parts of the Works of Franklin, of Chaptal, Lavoisier, and Darwin, have supplied us with our best materials. Some periodical papers from the World, Rambler, Guardian, and Adventurer, have been chosen: these are books with which all libraries are furnished. But we forbear to offer any list; the passages we

should have mentioned have been found to please in one family, but we are sensible that, as circumstances vary, the choice of books for different families ought to be different. Every parent must be capable of selecting those passages in books which are most suited to the age, temper, and taste of their children. Much of the success, both of literary and moral education, will depend upon our seizing the happy moments for instruction; moments when knowledge immediately applies to what children are intent upon themselves; the step which is to be taken by the understanding should immediately follow that which has already been secured. By watching the turn of mind, and by attending to the conversation of children, we may perceive exactly what will suit them in books; and we may preserve the connexion of their ideas without fatiguing their attention. A paragraph read aloud from the newspaper of the day, a passage from any book which parents happen to be reading themselves, will catch the attention of the young people in a family, and will, perhaps, excite more taste and more curiosity,

than could be given by whole volumes read at times when the mind is indolent, or intent upon other occupations.

The custom of reading aloud for a great while together, is extremely fatiguing to children, and hurtful to their understandings; they learn to read on without the slightest attention or thought; the more fluently they read, the worse it is for them; for their preceptors, whilst words and sentences are pronounced with tolerable emphasis, never seem to suspect that the reader can be tired, or that his mind may be absent from his book. The monotonous tones which are acquired by children, who read a great deal aloud, are extremely disagreeable, and the habit cannot easily be broken; we may observe, that children who have not acquired bad customs always read as they speak, when they understand what they read; but the moment they come to any sentence which they do not comprehend, their voice alters, and they read with hesitation, or with false emphasis; to these signals a preceptor should always attend, and the passage should be explained before the pupil is taught to read it in a musical tone, or with the proper em-

phasis; thus children should be taught to read by the understanding, and not merely by the ear. Dialogues, dramas, and well-written narratives, they always read *well*, and these should be their exercises in the art of reading; they should be allowed to put down the book as soon as they are tired; but an attentive tutor will perceive when they ought to be stopped, *before* the utmost point of fatigue. We have heard a boy of nine years old, who had never been taught elocution by any reading-master, read simple, pathetic passages, and natural dialogues in "Evenings at Home," in a manner which would have made even Sterne's critic forget his stop-watch. By reading much at a time, it is true, that a great number of books are run through in a few years; but this is not at all our object; on the contrary, our greatest difficulty has been, to find a sufficient number of books fit for children to read. If they early acquire a strong taste for literature, no matter how few authors they may have perused. We have often heard young people exclaim, "I'm glad I have not read such a book. I have a great pleasure to come!" Is not this better than to see a child yawn

over a work, and count the number of tiresome pages, whilst he says, "I shall have got through this book by and by; and what must I read when I have done this? I believe I never shall have read all I am to read! What a number of tiresome books there are in the world! I wonder what can be the reason that I must read them all. If I were but allowed to skip the pages that I don't understand, I should be much happier; for when I come to any thing entertaining in a book, I can keep myself awake, and then I like reading as well as any body does."

Far from forbidding to skip the incomprehensible pages, or to close the tiresome volume, we should exhort our pupils never to read one single page that tires, or that they do not fully understand. We need not fear, that, because an excellent book is not interesting at one period of education, it should not become interesting at another; the child is always the best judge of what is suited to his present capacity. If he says, "Such a book tires me;" the preceptor should never answer with a forbidding, reproachful look, "I am surprised at that, it is no great proof

“ of your taste ; the book, which you say
“ tires you, is written by one of the best au-
“ thors in the English language.” The boy
is sorry for it, but he cannot help it : and he
concludes, if he be of a timid temper, that he
has no taste for literature, since the best au-
thors in the English language tire him. It
is in vain to tell him that the book is “ uni-
“ versally allowed to be very entertain-
ing.”

“ If it be not such to me,
“ What care I how fine it be !”

The more encouraging, and more judicious
parent would answer upon a similar occasion,
“ You are right not to read what tires you,
“ my dear ; and I am glad that you have
“ sense enough to tell me that this book does
“ not entertain you, though it is written by
“ one of the best authors in the English lan-
“ guage. We do not think at all the worse
“ of your taste and understanding ; we know
“ that the day will come when this book will
“ probably entertain you ; put it by till
“ then, I advise you.”

It may be thought that young people, who
read only those parts of books which are

entertaining, or those which are selected for them, are in danger of learning a taste for variety and desultory habits which may prevent their acquiring accurate knowledge upon any subject; and which may render them incapable of that literary application without which nothing can be well learned. We hope the candid preceptor will suspend his judgment till we can explain our sentiments upon this subject more fully, when we examine the nature of Invention and Memory.

The secret fear that stimulates parents to compel their children to constant application to certain books arises, from the opinion, that much chronological and historical knowledge must at all events be acquired during a certain number of years. The knowledge of history is thought a necessary accomplishment in one sex, and an essential part of education in the other. We ought, however, to distinguish between that knowledge of history and of chronology which is really useful, and that which is acquired merely for parade. We must call that useful knowledge which enlarges the view of

human life, and of human nature; which teaches by the experience of the past, what we may expect in future. To study history as it relates to these objects, the pupil must have acquired much previous knowledge; the habit of reasoning, and the power of combining distant analogies. The works of Hume, of Robertson, Gibbon, or Voltaire, can be properly understood only by well-informed and highly cultivated understandings. Enlarged views of policy, some knowledge of the interests of commerce, of the progress and state of civilization, and literature in different countries, are necessary to whoever studies these authors with real advantage. Without these, the finest sense and the finest writing must be utterly thrown away upon the reader. Children, consequently, under the name of fashionable histories, often read what to them is absolute nonsense: they have very little motive for the study of history, and all that we can say to keep alive their interest, amounts to the common argument "that such information will be
" useful to them hereafter, when they hear
" history mentioned in conversation."

Some people imagine, that the memory resembles a storehouse, in which we should early lay up facts; and they assert, that however useless these may appear at the time when they are laid up, they will afterwards be ready for service at our summons. One allusion may be fairly answered by another, since it is impossible to oppose allusion by reasoning. In accumulating facts, as in amassing riches, people often begin by believing that they value wealth only for the use they shall make of it; but it often happens, that during the course of their labours, they learn habitually to set a value upon the coin itself, and they grow avaricious of that which they are sensible has little intrinsic value. Young people, who have accumulated a vast number of facts, and names, and dates, perhaps intended originally to make some good use of their treasure; but they frequently forget their laudable intentions, and conclude by contenting themselves with the display of their nominal wealth. Pedants and misers forget the real use of wealth and knowledge; and they accumulate, without rendering what they acquire useful to themselves or to others.

A number of facts are often stored in the mind, which lie there useless, because they cannot be found at the moment when they are wanted. It is not sufficient in education to store up knowledge; it is essential to arrange facts so that they shall be ready for use, as materials for the imagination, or the judgment, to select and combine. The power of retentive memory is exercised too much, the faculty of recollective memory is exercised too little, by the common modes of education. Whilst children are reading the history of kings, and battles, and victories, whilst they are learning tables of chronology and lessons of geography by rote, their inventive and their reasoning faculties are absolutely passive; nor are any of the facts which they learn in this manner associated with circumstances in real life. These trains of ideas may with much pains and labour be fixed in the memory, but they must be recalled precisely in the order in which they were learnt by rote, and this is not the order in which they may be wanted: they will be conjured up in technical succession, or in troublesome multitudes. Many people are obliged to repeat the alphabet

before they can recollect the relative place of any given letter ; others repeat a column of the multiplication-table before they can recollect the sum of the numbers which they want. There is a common rigmarole for telling the number of days in each month in the year ; those who have learned it by heart usually repeat the whole of it before they can recollect the place of the month which they want ; and sometimes, in running over the lines, people miss the very month which they are thinking of, or repeat its name without perceiving that they have named it. In the same manner, those who have learned historical or chronological facts in a technical mode, must go through the whole train of their rigmarole associations before they can hit upon the idea which they want. Lord Bolingbroke mentions an acquaintance of his, who had an amazing collection of facts in his memory, but unfortunately he could never produce one of them in the proper moment ; he was always obliged to go back to some fixed landing-place from which he was accustomed to take his flight. Lord Bolingbroke used to be afraid of asking him a question, because, when once he begun, he

went off like a larum, and could not be stopped; he poured out a profusion of things which had nothing to do with the point in question; and it was ten to one but he omitted the only circumstance that would have been really serviceable. Many people who have tenacious memories, and who have been ill-educated, find themselves in a similar condition, with much knowledge baled up, an incumbrance to themselves and to their friends. The great difference which appears in men of the same profession, and in the same circumstances, depends upon the application of their knowledge more than upon the quantity of their learning.

With respect to a knowledge of history and chronologic learning, every body is now nearly upon a level; this species of information cannot be a great distinction to any one: a display of such common knowledge is considered by literary people, and by men of genius especially, as ridiculous and offensive. One motive, therefore, for loading the minds of children with historic dates and facts, is likely, even from its having universally operated, to cease to operate in future.

Without making it a laborious task to young people, it is easy to give them such a knowledge of history as will preserve them from the shame of ignorance, and put them upon a footing with men of good sense in society, though not perhaps with men who have studied history for the purpose of shining in conversation. For our purpose, it is not necessary early to study voluminous, philosophic histories; these should be preserved for a more advanced period of their education. The first thing to be done, is, to seize the moment when curiosity is excited by the accidental mention of any historic name or event. When a child hears his father talk of the Roman emperors, or of the Roman people, he naturally inquires who these people were; some short explanation may be given, so as to leave curiosity yet unsatisfied. The prints of the Roman emperors' heads, and Mrs. Trimmer's prints of the remarkable events in the Roman and English history, will entertain children. Madame de Silleri, in her *Adela and Theodore*, describes historical hangings, which she found advantageous to her pupils. In a prince's, or a nobleman's palace, such hangings would be suitable de-

corations ; or in a public seminary of education it would be worth while to prepare them ; private families would perhaps be alarmed at the idea of expense, and at the idea that their house could not readily be furnished in proper time for the instruction of children. As we know the effect of such apprehensions of difficulty, we forbear from insisting upon historical hangings, especially as we think that children should not, by any great apparatus for teaching them history, be induced to set an exorbitant value upon this sort of knowledge, and should hence be excited to cultivate their memories without reasoning or reflecting. If any expedients are thought necessary to fix historic facts early in the mind, the entertaining display of Roman emperors, and British kings and queens, may be made, as Madame de Silleri recommends, in a magic lanthorn, or by the Ombres Chinoises. When these are exhibited, there should be some care taken not to introduce any false ideas. Parents should be present at the spectacle, and should answer each eager question with prudence. " Ha ! here comes queen Elizabeth ! " exclaims the child ; " was she a good woman ? "

A foolish show-man would answer, "Yes, master, she was the greatest queen that ever sat upon the English throne!" A sensible mother would reply, "My dear, I cannot answer that question; you will read her history yourself; you will judge by her actions whether she was, or was not, a good woman." Children are often extremely impatient to settle the precise merit and demerit of every historical personage, with whose names they become acquainted; but this impatience should not be gratified by the short method of referring to the characters given of these persons in any common historical abridgment. We should advise all such characters to be omitted in books for children; let those who read form a judgment for themselves: this will do more service to the understanding, than can be done by learning by rote the opinion of any historian. The good and bad qualities; the decisive, yet contradictory epithets, are so jumbled together in these characters, that no distinct notion can be left in the reader's mind; and the same words recur so frequently in the characters of different kings, that they are read over in

a monotonous voice, as mere concluding sentences, which come, of course, at the end of every reign. “King Henry the Fifth was tall and slender; with a long neck, engaging aspect, and limbs of the most elegant turn. * * * * * His valour was such as no danger could startle, and no difficulty could oppose. He managed the dissensions amongst his enemies with such address as spoke him consummate in the arts of the cabinet. He was chaste, temperate, modest, and devout; scrupulously just in his administration, and severely exact in the discipline of his army, upon which he knew his glory and success in a great measure depended. In a word, it must be owned that he was without an equal in the arts of war, policy, and government. His great qualities were, however, somewhat obscured by his ambition, and his natural propensity to cruelty.”

Is it possible that a child of seven or eight years old can acquire any distinct, or any just ideas, from the perusal of this character of Henry the Fifth? yet it is selected as one of the best drawn characters from a little

abridgment of the History of England, which is, in general, as well done as any we have seen. Even the least exceptionable historic abridgments require the corrections of a patient parent. In abridgments for children, the facts are usually interspersed with what the authors intend for moral reflections, and easy explanations of political events, which are meant to be suited to *the meanest capacities*. These reflections and explanations do much harm; they instil prejudice, and they accustom the young, unsuspecting reader to swallow absurd reasoning, merely because it is often presented to them. If no history can be found entirely free from these defects, and if it be even impossible to correct any completely, without writing the whole over again, yet much may be done by those who hear children read. Explanations can be given at the moment when the difficulties occur. When the young reader pauses to think, allow him time to think, and suffer him to question the assertions which he meets with in books with freedom, and that minute accuracy which is only tiresome to those who cannot reason. The simple morality of childhood is con-

tinually puzzled and shocked at the representation of the crimes and the virtues of historic heroes. History, when divested of the graces of eloquence, and of that veil which the imagination is taught to throw over antiquity, presents a disgusting, terrible list of crimes and calamities : murders, assassinations, battles, revolutions, are the memorable events of history. The love of glory atones for military barbarity ; treachery and fraud are frequently dignified with the names of prudence and policy ; and the historian, desirous to appear moral and sentimental, yet compelled to produce facts, makes out an inconsistent, ambiguous system of morality. A judicious and honest preceptor will not, however, imitate the false tenderness of the historian for the dead, he will rather consider what is most advantageous to the living ; he will perceive, that it is of more consequence that his pupils should have distinct notions of right and wrong, than that they should have perfectly by rote all the Grecian, Roman, English, French, all the fifty volumes of the Universal History. A preceptor will not surely attempt, by any sophistry, to justify the crimes which

sometimes obtain the name of heroism ; when his ingenuous, indignant pupil verifies the astonishing numeration of the hundreds and thousands that were put to death by a conqueror, or that fell in one battle, he will allow this astonishment and indignation to be just, and he will rejoice that it is strongly felt and expressed. .

Besides the false characters which are sometimes drawn of individuals in history, national characters are often decidedly given in a few epithets, which prejudice the mind, and convey no real information. Can a child learn any thing but national prepossession from reading in a character of the English nation, that “ boys before they can “ speak, discover that they know the proper “ guards in boxing with their fists ; a quality “ that, perhaps, is peculiar to the English, “ and is seconded by a strength of arm that “ few other people can exert. *This* gives “ their soldiers an infinite superiority in all “ battles that are to be decided by the bayonet “ screwed upon the musket ? ” * Why should children be told that the Italians are

* V. Guthrie's Geographical, Historical, and Commercial Grammar, p. 186.

naturally revengeful; the French *naturally* vain and perfidious, “excessively credulous “and litigious;” that the Spaniards are *naturally* jealous and haughty?*

The patriotism of an enlarged and generous mind cannot, surely, depend upon the early contempt inspired for foreign nations. We do not speak of the education necessary for naval and military men; with this we have nothing to do; but surely it cannot be necessary to teach national prejudices to any other class of young men. If these prejudices are ridiculed by sensible parents, children will not be misled by partial authors; general assertions will be of little consequence to those who are taught to reason; they will not be overawed by nonsense wherever they may meet with it.

The words whig and tory occur frequently in English history, and liberty and tyranny are talked of—the influence of the crown—the rights of the people. What are children of eight or nine years old to understand by these expressions? and how can a tutor explain them, without inspiring political preju-

* V. Guthrie's Geographical, Historical, and Commercial Grammar, p. 398.

ances? We do not mean here to enter into any political discussion; we think that children should not be taught the principles of their preceptors, whatever they may be; they should judge for themselves; and, till they are able to judge, all discussion, all explanations, should be scrupulously avoided. Whilst they are children, the plainest chronicles are for them the best histories, because they express no political tenets and dogmas. When our pupils grow up, at whatever age they may be capable of understanding them, the best authors who have written on each side of the question, the best works, without any party considerations, should be put into their hands; and let them form their own opinions from facts and arguments, uninfluenced by passion, and uncontrolled by authority.

As young people increase their collection of historic facts, some arrangement will be necessary to preserve these in proper order in the memory. Priestley's Biographical Chart is an ingenious contrivance for this purpose; it should hang up in the room where children read, or rather where they live; for we hope no room will ever be dis-

mally consecrated to their studies. Whenever they hear any celebrated name mentioned, or when they meet with any in books, they will run to search for these names in the biographical chart; and those who are used to children will perceive, that the pleasure of this search, and the joy of the discovery, will fix biography and chronology easily in their memories. Mortimer's Student's Dictionary, and Brookes's Gazetteer, should, in a library or room which children usually inhabit, be always within the reach of children. If they are consulted at the very moment they are wanted, much may be learned from them; but if there be any difficulty in getting at these dictionaries, children forget and lose all interest in the things which they wanted to know. But if knowledge becomes immediately useful or entertaining to them, there is no danger of their forgetting. Who ever forgets Shakespeare's historical plays? the arrangements contrived and executed by others do not always fix things so firmly in our remembrance, as those which we have had some share in contriving and executing ourselves.

One of our pupils has drawn out a biogra-

phical chart upon the plan of Priestley's, inserting such names only as he was well acquainted with; he found, that in drawing out this chart, a great portion of general history and biography was fixed in his memory. Charts, in the form of Priestley's, but without the names of the heroes, &c. being inserted, would perhaps be useful for schools and private families.

There are two French historical works, which we wish were well translated for the advantage of those who do not understand French. The chevalier Meheghan's *Tableau de l'Histoire Moderne*, which is sensibly divided into epochs; and Condillac's *View of Universal History*, comprised in five volumes, in his "*Cours d'Etude pour l'Instruction du Prince de Parme.*" This history carries on, along with the records of wars and revolutions, the history of the progress of the human mind, of arts and sciences; the view of the different governments of Europe is full and concise; no prejudices are instilled, yet the manly and rational eloquence of virtue gives life and spirit to the work. The concluding address, from the preceptor to his royal pupil, is written with all the en-

lightened energy of a man of truth and genius. We do not recommend Condillac's history as an elementary work, for this it is by no means fit; but it is one of the best histories that a young man of fifteen or sixteen can read. Millot, *Elemens de l'Histoire Generale, Ancienne et Moderne*, is another useful work for young persons.

We should observe, that M. Condillac's *Metaphysical Lessons*, which are inserted in his *Cours d'Etude*, are not suited to the capacity of a child of seven years old. Without at present attempting to examine the abbé's system, we may remark, that in education it is more necessary to preserve the mind from prejudice, than to prepare it for the adoption of any system. Those who have attended to metaphysical proceedings know, that if a few apparently trifling concessions be made in the beginning of the business, a man of ingenuity may force us, in the end, to acknowledge whatever he pleases. It is impossible that a child can foresee these consequences, nor is it probable that he should have paid such accurate attention to the operations of his own mind, as to be able to detect the fallacy, or to feel the

truth of his tutor's assertions. A metaphysical catechism may readily be taught to children; they may learn to answer almost as readily as Trenck answered in his sleep to the guards who regularly called to him every night at midnight. Children may answer expertly to the questions, "What is attention? What is memory? What is imagination? What is the difference between wit and judgment? How many sorts of ideas have you, and which be they?" But when they are perfect in their responses to all these questions, how much are they advanced in real knowledge?

Allegory has mixed with metaphysics almost as much as with poetry; personifications of memory and imagination are familiar to us; to each have been addressed odes and sonnets, so that we almost believe in their individual existence, or at least we are become jealous of the separate attributes of these ideal beings. This metaphysical mythology may be ingenious and elegant, but it is better adapted to the pleasures of poetry than to the purposes of reasoning. Those who have been accustomed to respect and believe in it will find it difficult soberly to

examine any argument upon abstract subjects ; their favourite prejudices will retard them when they attempt to advance in the art of reasoning. All accurate, metaphysical reasoners have perceived and deplored the difficulties which the prepossessions of education have thrown in their way ; and they have been obliged to waste their time and powers in fruitless attempts to vanquish these in their own minds, or in those of their readers. Can we wish in education to perpetuate similar errors, and to transmit to another generation the same artificial imbecility ? Or can we avoid these evils, if, with our present habits of thinking and speaking, we attempt to teach metaphysics to children of seven years old ?

A well-educated, intelligent young man, accustomed to accurate reasoning, yet brought up without any metaphysical prejudices, would be a treasure to a metaphysician to cross-examine : he would be eager to hear the unprejudiced youth's evidence, as the monarch, who had ordered a child to be shut up without hearing one word of any human language, from infancy to manhood, was impatient to hear what would be the

first word that he uttered. But though we wish extremely well to the experiments of metaphysicians, we are more intent upon the advantage which our unprejudiced pupils would themselves derive from their judicious education: probably they would, coming fresh to the subject, make some discoveries in the science of metaphysics; they would have no paces* to show; perhaps, they might advance a step or two on this difficult ground.

When we object to the early initiation of novices into metaphysical mysteries, we only recommend it to preceptors not to teach; let pupils learn whatever they please, or whatever they can, without reading any metaphysical books, and without hearing any opinions, or learning any definitions by rote; children may reflect upon their own feelings, and they should be encouraged to make accurate observations upon their own minds. Sensible children will soon, for instance, observe the effect of habit, which enables them to repeat actions with ease and facility, which they have frequently performed. The

* V. Dunciad.

association of ideas, as it assists them to remember particular things, will soon be noticed, though not, perhaps, in scientific words. The use of the association of pain or pleasure, in the form of what we call reward and punishment, may probably be early perceived. Children will be delighted with these discoveries if they are suffered to make them, and they will apply this knowledge in their own education. Trifling daily events will recall their observations, and experience will confirm or correct their juvenile theories. But if metaphysical books or dogmas are forced upon children in the form of lessons, they will as such be learned by rote and forgotten.

To prevent parents from expecting as much as the abbé Condillac does from the comprehension of pupils of six or seven years old upon abstract subjects, and to enable preceptors to form some idea of the perfect simplicity in which children unprejudiced upon metaphysical questions, would express themselves, we give the following little dialogues, word for word, as they passed :

1780. *Father.* Where do you think ?

A——. (Six years and a half old.) In my mouth.

Ho——. (Five years and a half old.) In my stomach.

Father. Where do you feel that you are glad, or sorry?

A——. In my stomach.

Ho——. In my eyes.

Father. What are your senses for?

Ho——. To know things.

Without any previous conversation, *Ho——* (five years and a half old) said to her mother, “I think you will be glad my right foot is sore, because you told me I did not lean enough upon my left foot.” This child seemed, on many occasions, to have formed an accurate idea of the use of punishment, considering it always as pain given to cure us of some fault, or to prevent us from suffering more pain in future.

April, 1792. *Hi——*, a boy nine years and three-quarters old, as he was hammering at a work-bench, paused for a short time, and then said to his sister, who was in the room with him, “Sister, I observe that when I don’t look at my right hand when I hammer, and only think where it ought to

“ hit, I can hammer much better than when
“ I look at it. I don’t know what the reason
“ of that is, unless it is because I think in my
“ head.”

M——. I am not sure, but I believe that we do think in our heads.

H——. Then, perhaps, my head is divided into two parts, and that one thinks for one arm, and one for the other ; so that when I want to strike with my right arm, I think where I want to hit the wood, and then, without looking at it, I can move my arm in the right direction ; as when my father is going to write, he sometimes sketches it.

M——. What do you mean, my dear, by sketching it ?

H——. Why, when he moves his hand (flourishes) without touching the paper with the pen. And, at first, when I want to do any thing, I cannot move my hand as I mean ; but after being used to it, then I can do much better. I don’t know why.

After going on hammering for some time, he stopped again, and said, “ There’s another
“ thing I wanted to tell you. Sometimes I
“ think to myself that it is right to think of
“ things that are sensible, and then when I

“ want to set about thinking of things that
“ are sensible, I can *not*; I can only think
“ of that over and over again.”

M——. You can only think of what?

H——. Of these words. They seem to
be said to me over and over again, till I am
quite tired, “ That it is right to think of
“ things that have some sense.”

The childish expressions in these remarks
have not been altered, because we wished to
show exactly how children at this age express
their thoughts. If M. Condillac had been
used to converse with children, he surely
would not have expected; that any boy of
seven years old could have understood his
definition of attention, and his metaphysical
preliminary lessons.

After these preliminary lessons, we have
a sketch of the prince of Parma's subsequent
studies. M. Condillac says, that his royal
highness (being not yet eight years old) was
now “ perfectly well acquainted with the
“ system of intellectual operations. He
“ comprehended already the production of
“ his ideas; he saw the origin and the pro-
“ gress of the habits which he had contracted,
“ and he perceived how he could substitute

“just ideas for the false ones which had
“ been given to him, and good habits instead
“ of the bad habits which he had been suf-
“ fered to acquire. He had become so
“ quickly familiar with all these things, that
“ he retraced their connexion without effort,
“ quite playfully.”*

This prince must have been a prodigy !
After having made him reflect upon his own
infancy, the abbé judged that the infancy of
the world would appear to his pupil “ the
“ most curious subject, and the most easy
“ to study.” The analogy between these
two infancies seems to exist chiefly in words ;
it is not easy to gratify a child’s curiosity
concerning the infancy of the world. Ex-
tracts from *L’Origine des Loix*, by M.
Goguet, with explanatory notes, were put

* Motif des études qui ont été faites après les Leçons Préliminaires, p. 67.

Le jeune prince connoissoit déjà la système des opérations de son âme, il comprenoit la génération de ses idées, il voyoit l’origine et le progrès des habitudes qu’il avoit contractées, et il concevoit comment il pouvoit substituer des idées justes aux idées fausses qu’on lui avoit données, et de bonnes habitudes aux mauvaises qu’on lui avoit laissé prendre. Il s’étoit familiarisé si promptement avec toutes ces choses, qu’il s’en retraçoit la suite sans effort, et comme en badinant.

into the prince's hands, to inform him of what happened in the commencement of society. These were his evening studies. In the mornings he read the French poets, Boileau, Molière, Corneille, and Racine. Racine, as we are particularly informed, was, in the space of one year, read over a dozen times. Wretched prince ! Unfortunate Racine ! the abbé acknowledges, that at first these authors were not understood with the same ease as the preliminary lessons had been : every word stopped the prince, and it seemed as if every line was written in an unknown language. This is not surprising ; for how is it possible that a boy of seven or eight years old, who could know nothing of life and manners, could taste the wit and humour of Molière ; and incapable as he must have been of sympathy with the violent passions of tragic heroes and heroines, how could he admire the lofty dramas of Racine ? We are willing to suppose, that the young prince of Parma was quick and well informed for his age ; but to judge of what is practicable, we must produce examples from common life instead of prodigies.

S——, a boy of nine years old, of whose

abilities the reader will be able to form some judgment from anecdotes in the following pages, whose understanding was not wholly uncultivated, when he was between nine and ten years old expressed a wish to read some of Shakspeare's plays. King John was given to him. After the book had been before him for one winter's evening, he returned it to his father, declaring that he did not understand one word of the play ; he could not make out what the people were about, and he did not wish to read any more of it. His brother H——, at twelve years old, had made an equally ineffectual attempt to read Shakspeare ; he was also equally decided and honest in expressing his dislike to it ; he was much surprised at seeing his sister B——, who was a year or two older than himself, reading Shakspeare with great avidity, and he frequently asked what it was in that book that could entertain her. Two years afterwards, when H—— was between fourteen and fifteen, he made another trial, and he found that he understood the language of Shakspeare without any difficulty. He read all the historical plays with the greatest eagerness, and particularly seized the charac-

ter of Falstaff. He gave a humorous description of the figure and dress which he supposed Sir John should have, of his manner of sitting, speaking, and walking. Probably, if H—— had been pressed to read Shakspeare at the time when he did not understand it, he might never have read these plays with real pleasure during his whole life. Two years increase prodigiously the vocabulary and the ideas of young people, and preceptors should consider, that what we call literary taste cannot be formed without a variety of knowledge. The productions of our ablest writers cannot please, till we are familiarised to the ideas which they contain, or to which they allude.

Poetry is usually supposed to be well suited to the taste and capacity of children. In the infancy of taste and of eloquence rhetorical language is constantly admired; the bold expression of strong feeling, and the simple description of the beauties of nature, are found to interest both cultivated and uncultivated minds. To understand descriptive poetry no previous knowledge is required, beyond what common observation and sympathy supply; the analogies and

transitions of thought are slight and obvious ; no labour of attention is demanded, no active effort of the mind is requisite to follow him. The pleasures of simple sensation are by descriptive poetry recalled to the imagination, and we live over again our past lives without increasing, and without desiring to increase, our stock of knowledge. If these observations be just, there must appear many reasons why even that species of poetry, which they can understand, should not be the early study of children? from time to time it may be an agreeable amusement, but it should not become a part of their daily occupations. We do not want to retrace perpetually in their memories a few musical words, or a few simple sensations ; our object is, to enlarge the sphere of our pupil's capacity, to strengthen the habits of attention, and to exercise all the powers of the mind. The inventive and the reasoning faculties must be injured by the repetition of vague expressions, and of exaggerated description, with which most poetry abounds. Childhood is the season for observation, and those who observe accurately, will afterwards be able to describe accurately ; but those who

merely read descriptions, can present us with nothing but the pictures of pictures. We have reason to believe that children who have not been accustomed to read a vast deal of poetry, are not for that reason less likely to excel in poetic language. The reader will judge from the following explanations of Gray's Hymn to Adversity, that the boy to whom they were addressed was not much accustomed to read even the most popular English poetry ; yet this is the same child who, a few months afterwards, wrote the translation from Ovid of the Cave of Sleep, and who gave the extempore description of a Summer's Evening in tolerably good language.

Jan. 1796. S—— (nine years old) learned by heart the Hymn to Adversity. When he came to repeat this poem, he did not repeat it well, and he had it not perfectly by heart. His father suspected that he did not understand it, and he examined him with some care.

Father. "Purple tyrants." Why purple?

S——. Because purple is a colour something like red and black ; and tyrants look red and black.

Father. No. Kings were formerly called tyrants, and they wore purple robes: the purple of the ancients is supposed to be not the colour which we call purple, but that which we call scarlet.

“ When first thy sire to send on earth
“ Virtue, his darling child, design’d,
“ To thee he gave the heav’nly birth,
“ And bade to form her infant mind.”

When S—— was asked who was meant in these lines by “ thy sire,” he frowned terribly; but after some deliberation he discovered that “ thy sire,” meant Jove, the father, or sire of Adversity: still he was extremely puzzled with “ the heav’nly birth.” First he thought, that the heavenly birth was the birth of Adversity; but upon recollection, the heavenly birth was to be trusted to Adversity, therefore she could not be trusted with the care of herself. S—— at length discovered, that Jove must have had two daughters, and he said he supposed that Virtue must have been one of these daughters, and that she must have been sister to Adversity, who was to be her nurse, and who was to form her infant mind; he now

perceived that the expression, “stern, rugged nurse,” referred to Adversity; before this he said, he did not know who it meant, whose “rigid lore” was alluded to in these two lines, or who bore it with patience.

“Stern, rugged nurse, thy rigid lore
“With patience many a year she bore.”

The following stanza S—— repeated a second time, as if he did not understand it:

“Scared at thy frown terrific, fly
“Self-pleasing Folly’s idle brood,
“Wild laughter, noise, and thoughtless joy,
“And leave us leisure to be good.
“Light they disperse, and with them go
“The summer friend, the flatt’ring foe;
“By vain Prosperity receiv’d,
“To her they vow their truth, and are again believ’d.”

Father. Why does the poet say *wild* laughter?

S——. It means, not reasonable.

Father. Why is it said,

“By vain Prosperity receiv’d,
“To her they vow their truth, and are again believ’d.”

S——. Because the people, I suppose, when they were in prosperity before, be-

lieved them before ; but I think that seems confused.

“ Oh, gently on thy suppliant’s head,
“ Dread Goddess, lay thy chast’ning hand !”

S—— did not seem to comprehend the first of these two lines ; and upon cross-examination it appeared that he did not know the meaning of the word *suppliant* : he thought it meant “ a person who sup-
“ plies us.”

“ Not in thy Gorgon terrors clad,
“ Nor circled by the vengeful band,
“ As by the impious thou art seen.”

It may appear improbable, that a child who did not know the meaning of the word *suppliant*, should understand the Gorgon terrors, and the vengeful band, yet it was so ; S—— understood these lines distinctly ; he said, “ Gorgon terrors, yes, like the head of “ Gorgon.” He was at this time translating from Ovid’s *Metamorphoses* ; and it happened that his father had explained to him the ideas of the ancients concerning the furies ; besides this, several people in the family had been reading Potter’s *Æschylus*,

and the furies had been the subject of conversation. From such accidental circumstances as these, children often appear, in the same instant almost, to be extremely quick, and extremely slow of comprehension; a preceptor, who is well acquainted with all his pupil's previous knowledge, can rapidly increase his stock of ideas by turning every accidental circumstance to account: but if a tutor persists in forcing a child to a regular course of study, all his ideas must be collected, not as they are wanted in conversation or in real life, but as they are wanted to get through a lesson or a book. It is not surprising, that M. Condillac found such long explanations necessary for his young pupil in reading the tragedies of Racine; he says, that he was frequently obliged to translate the poetry into prose, and frequently the prince could gather only some general idea of the whole drama, without understanding the parts. We cannot help regretting, that the explanations have not been published for the advantage of future preceptors; they must have been almost as difficult as those for the preliminary lessons. As we are convinced, that the

art of education can be best improved by the registering of early experiments, we are very willing to expose such as have been made without fear of fastidious criticism or ridicule.

May 1st, 1796. A little poem called "The Tears of Old May Day," published in the second volume of the *World*, was read to S——. The preceding May-day the same poem had been read to him; he then liked it much, and his father wished to see what effect it would have upon this second reading. The pleasure of novelty was worn off; but S—— felt new pleasure from his having, during the last year, acquired a great number of new ideas, and especially some knowledge of ancient mythology, which enabled him to understand several allusions in the poem which had before been unintelligible to him. He had become acquainted with the muses, the graces, Cynthia, Philomel, Astrea, who are all mentioned in this poem; he now knew something about the Hesperian fruit, [Amalthea's horn, choral dances, Lybian Ammon, &c. which are also alluded to; he remembered the explanation which his father had given him the preceding

year of a line which alludes to the island of Atalantis.

“ Then vanished many a sea-girt isle and grove,
“ Their forests floating on the watery plain ;
“ Then famed for arts, and laws derived from Jove,
“ My Atalantis sunk beneath the main.”

S——, whose imagination had been pleased with the idea of the fabulous island of Atalantis, recollected what he had heard of it ; but he had forgotten the explanation of another stanza of this poem, which he had heard at the same time.

“ To her no more Augusta’s wealthy pride
“ Pours the full tribute from Potosi’s mine ;
“ Nor fresh-blown garlands village maids provide,
“ A purer offering at her rustic shrine.”

S—— forgot that he had been told that London was formerly called Augusta ; that Potosi’s mines contained silver ; and that pouring the tribute from Potosi’s mines alludes to the custom of hanging silver tankards upon the May-poles in London on May-day ; consequently the beauty of this stanza was entirely lost upon him. A few circumstances were now told to S——, which imprinted the explanation effectually in his memory : his father told him that the

publicans, or those who keep public-houses in London, make it a custom to lend their silver tankards to the poor chimney-sweepers and milk-maids who go in procession through the streets on May-day. The confidence that is put in the honesty of these poor people pleased S——, and all these circumstances fixed the principal idea more firmly in his mind.

The following lines could please him only by their sound the first time he heard them :

“ Ah ! once to fame and bright dominion born,

“ The earth and smiling ocean saw me rise,

“ With time coeval, and the star of morn,

“ The first, the fairest daughter of the skies.

Then when at heaven's prolific mandate sprung

“ The radiant beam of new created day,

“ Celestial harps, to airs of triumph strung,

“ Hailed the glad dawn, and angels called me May.

“ Space in her empty regions heard the sound,

“ And hills and dales, and rocks and valleys rung ;

“ The sun exulted in his glories round,

“ And shouting planets in their courses sung.”

The idea which the ancients had of the music of the spheres was here explained to S——, and some general notion was given to him of the *harmonic numbers*.

What a number of new ideas this little poem served to introduce into the mind! these explanations being given precisely at the time when they were wanted, fixed the ideas in the memory in their proper places, and associated knowledge with the pleasures of poetry. Some of the effect of a poem must, it is true, be lost by interruptions and explanations; but we must consider the general improvement of the understanding, and not merely the cultivation of poetic taste. In the instance which we have just given, the pleasure which the boy received from the poem seemed to increase in proportion to the exactness with which it was explained. The succeeding year, on May-day 1797, the same poem was read to him for the third time, and he appeared to like it better than he had done upon the first reading. If, instead of perusing Racine twelve times in one year, the young prince of Parma had read any one play or scene at different periods of his education, and had been led to observe the increase of pleasure which he felt from being able to understand what he read better each succeeding time, he would probably have improved more rapidly

in his taste for poetry, though he might not have known Racine by rote quite so early as at eight years old.

We considered parents almost as much as children, when we advised that a great deal of poetry should not be read by very young pupils ; the labour and difficulty of explaining it can be known only to those who have tried the experiment. The *Elegy in a Country Church-yard* is one of the most popular poems, which is usually given to children to learn by heart ; it cost at least a quarter of an hour to explain to intelligent children, the youngest of whom was at the time nine years old, the first stanza of that elegy. And we have heard it asserted by a gentleman not unacquainted with literature, that perfectly to understand *L'Allegro* and *Il Penseroso*, requires no inconsiderable portion of ancient and modern knowledge. It employed several hours, on different days, to read and explain *Comus* so as to make it intelligible to a boy of ten years, who gave his utmost attention to it. The explanations on this poem were found to be so numerous and intricate, that we thought it best not to produce them here. Explanations which

are given by a reader can be given with greater rapidity and effect, than any which a writer can give to children : the expression of the countenance is advantageous ; the sprightliness of conversation keeps the pupils awake ; and the connexion of the parts of the subject can be carried on better in speaking and reading, than it can be in written explanations. Notes are almost always too formal, or too obscure ; they explain what was understood more plainly before any illustration was attempted, or they leave us in the dark the moment we want to be enlightened. Wherever parents or preceptors can supply the place of notes and commentators, they need not think their time ill bestowed. If they cannot undertake these troublesome explanations, they can surely reserve obscure poems for a later period of their pupil's education. Children, who are taught at seven or eight years old to repeat poetry, frequently get beautiful lines by rote, and speak them fluently, without in the least understanding the meaning of the lines. The business of a poet is, to please the imagination, and to move the passions : in proportion as his language is sub-

lime or pathetic, witty or satirical, it must be unfit for children. Knowledge cannot be detailed, or accurately explained in poetry; the beauty of an allusion depends frequently upon the elliptical mode of expression, which passing imperceptibly over all the intermediate links in our associations, is apparent only when it touches the ends of the chain. Those who wish to instruct must pursue the opposite system.

In Dr. Wilkins's Essay on Universal Language, he proposes to introduce a note similar to the common note of admiration, to give the reader notice when any expression is used in an ironical, or in a metaphoric sense. Such a note would be of great advantage to children: in reading poetry they are continually puzzled between the obvious and the metaphoric sense of the words.*

The desire to make children learn a vast deal of poetry by heart, fortunately for the

* In Dr. Franklin's posthumous Essays, there is an excellent remark with respect to typography as concerned with the art of reading—the note of interrogation should be placed at the beginning as well as at the end of a question; it is sometimes so far distant as to be out of the reach of an unpractised eye.

understanding of the rising generation, does not rage with such violence as formerly. Dr. Johnson successfully laughed at infants lisping out, "Angels and ministers of grace defend us!" His reproof was rather ill-natured, when he begged two children, who were produced, to repeat some lines to him—"Can't the pretty dears repeat them both together?" But this reproof has probably prevented many exhibitions of the same kind.

Some people learn poetry by heart for the pleasure of quoting it in conversation; but the talent for quotation, both in conversation and in writing, is now become so common, that it cannot confer immortality.* Every person has by rote certain passages from Shakspeare and Thomson, Goldsmith and Gray; these trite quotations fatigue the literary ear, and disgust the taste of the public. To this change in the fashion of the day, those who are much influenced by fashion, will probably listen with more eagerness than to all the reasons that have been offered. But to return to the prince of Parma. After

* Young.

reading Corneille, Racine, Molière, Boileau, &c. the young prince's taste was formed, as we are assured by his preceptor, and he was now fit for the study of grammar. So much is due to the benevolent intentions of a man of learning and genius, who submits to the drudgery of writing an elementary book on grammar, that even a critic must feel unwilling to examine it with severity. M. Condillac, in his attempt to write a rational grammar, has produced, if not a grammar fit for children, a philosophical treatise, which a well-educated young person will read with great advantage at the age of seventeen or eighteen. All that is said of the natural language of signs, of the language of action, of pantomimes, and of the institutions of M. l'Abbé l'Epée for teaching languages to the deaf and dumb, is not only amusing and instructive to general readers, but with slight alterations in the language might be perfectly adapted to the capacity of children. But when the abbé Condillac goes on to "Your Highness knows what is meant by a system," he immediately forgets his pupil's age. The reader's attention is presently engaged by an abstract disquisition on the re-

lative proportion, represented by various circles of different extent ; of the wants, ideas, and language of savages, shepherds, commercial and polished nations ; when he is suddenly wakened to the recollection, that all this is addressed to a child of eight years old ; an allusion to the prince's little chair completely rouses us from our reverie.

“ As your little chair is made in the same
“ form as mine, which is higher, so the sys-
“ tem of ideas is fundamentally the same
“ amongst savage and civilized nations ; it
“ differs only in degrees of extension, as
“ after one and the same model, seats of
“ different heights have been made.”*

Such mistakes as these, in a work intended for a child, are so obvious, that they could not have escaped the penetration of a great man, had he known as much of the practice as he did of the theory of the art of teaching.

To analyse a thought, and to show the

* Comme votre petite chaise est faite sur le même modèle que la mienne qui est plus élevée, ainsi le système des idées est le même pour le fond chez les peuples sauvages et chez les peuples civilisés, il ne diffère, que parce qu'il est plus ou moins étendu ; c'est un même modèle d'après lequel on a fait des sieges de différente hauteur. *Grammaire*, page 23.

construction of language, M. Condillac,* in this volume on grammar, has chosen for an example, a passage from an *éloge* on Peter Corneille pronounced before the French Academy by Racine, on the reception of Thomas Corneille, who succeeded to Peter. It is in the French style of academical panegyric, a representation of the chaotic state in which Corneille found the French theatre, and of the light and order which he diffused through the dramatic world by his creative genius. A subject less interesting, or more unintelligible to a child, could scarcely have been selected. The lecture on the anatomy of Racine's thought lasts through fifteen pages ; according to all the rules of art the dissection is ably performed, but most children will turn from the operation with disgust.

The abbé Condillac's treatise on the art of writing immediately succeeds to his grammar ; the examples in this volume are much better chosen ; they are interesting to all readers ; those especially from Madame de Sevigné's letters, which are drawn from fa-

* Condillac. *Grammaire*, p. 64.

miliar language and domestic life. The enumeration of the figures of speech, and the classification of the flowers of rhetoric are judiciously suppressed; the catalogue of the different sorts of *turns*, phrases proper for maxims and principles, turns proper for sentiment, ingenuous turns and quaint turns, stiff turns and easy turns, might, perhaps, have been somewhat abridged. The observations on the effect of unity in the whole design, and in all the subordinate parts of a work, though they may not be new, are ably stated; and the remark, that the utmost propriety of language, and the strongest effect of eloquence and reasoning, result from the greatest possible attention to the connexion of our ideas, is impressed forcibly upon the reader throughout this work.

How far works of criticism in general are suited to children, remains to be considered. Such works cannot probably suit their taste, because the taste for systematic criticism cannot arise in the mind till many books have been read, till the various species of excellence suited to different sorts of composition have been perceived, and till the mind has made some choice of its own. It

is true, that works of criticism may teach children to talk well of what they read ; they will be enabled to repeat what good judges have said of books. But this is not, or ought not to be the object. After having been thus officiously assisted by a connoisseur, who points out to them the beauties of authors, will they be able afterwards to discover beauties without his assistance ? Or have they as much pleasure in being told what to admire, what to praise, and what to blame, as if they had been suffered to feel and to express their own feelings naturally ? In reading an interesting play, or beautiful poem, how often has a man of taste and genius execrated the impertinent commentator, who interrupts him by obtruding his ostentatious notes. “ The reader will observe the beauty of this thought.” “ This is one of the finest passages in any author, ancient or modern.” “ The sense of this line, which all former annotators have mistaken, is obviously restored by the addition of the vowel *i*,” &c.

Deprived by these anticipating explanations of the use of his own common sense, the reader detests the critic, soon learns to

disregard his references, and to skip over his learned truisms. Similar sensations, tempered by duty or by fear, may have been sometimes experienced by a vivacious child, who, eager to go on with what he is reading, is prevented from feeling the effect of the whole by a premature discussion of its parts. We hope that no keen hunter of paradoxes will here exult in having detected us in a contradiction : we are perfectly aware, that but a few pages ago we exhibited examples of detailed explanations of poetry for children ; but these explanations were not of the criticising class, they were not designed to tell young people what to admire, but simply to assist them to understand before they admired.

Works of criticism are sometimes given to pupils, with the idea that they will instruct and form them in the art of writing ; but few things can be more terrific or dangerous to the young writer, than the voice of relentless criticism. Hope stimulates, but fear depresses the active power of the mind ; and how much have they to fear, who have continually before their eyes the mistakes and disgrace of others ; of others, who with su-

erior talents have attempted and failed ! With a multitude of precepts and rules of rhetoric full in their memory, they cannot express the simplest of their thoughts ; and to write a sentence composed of members, which have each of them names of many syllables, must appear a most formidable and presumptuous undertaking. On the contrary, a child who, in books and in conversation, has been used to hear and to speak correct language, and who has never been terrified with the idea, that to write is to express his thoughts in some new and extraordinary manner, will naturally write as he speaks and as he thinks. Making certain characters upon paper, to represent to others what he wishes to say* to them, will not appear to him a matter of dread and danger, but of convenience and amusement, and he will write prose without knowing it.

Amongst some " practical essays,"† lately published, " to assist the exertions of youth " in their literary pursuits," there is an essay on letter-writing, which might deter a timid child from ever undertaking such an arduous

* Rousseau.

† Milne's Well-bred Scholar.

task as that of writing a letter. So much is said from Blair, from Cicero, from Quintilian ; so many things are requisite in a letter ; purity, neatness, simplicity ; such caution must be used to avoid “ exotics transplanted “ from foreign languages, or raised in the “ hot-beds of affectation and conceit ;” such attention to the mother tongue is prescribed ; that the young nerves of the letter-writer must tremble when he takes up his pen. Besides, he is told that “ he should be extremely reserved on the head of pleasantries,” and that “ as to sallies of wit, it is “ still more dangerous to let them fly at random ; but he may repeat the smart sayings “ of others if he will, or relate *part* of some “ droll adventure to enliven his letter.”

The anxiety that parents and tutors frequently express, to have their children write letters, and good letters, often prevents the pupils from writing during the whole course of their lives. Letter-writing becomes a task, and an evil to children : whether they have any thing to say or not, write they must, this post or next without fail, *a pretty letter* to some relation or friend, who has exacted from them the awful promise of

unctual correspondence. It is no wonder that school-boys and school-girls, in these circumstances, feel that necessity is *not* the mother of invention; they are reduced to the humiliating misery of begging from some old practitioner a beginning or an ending, and something to say to fill up the middle.

Locke humorously describes the misery of a school-boy who is to write a theme; and having nothing to say, goes about with the usual petition in these cases to his companions: "Pray give me a little sense." Would it not be better to wait till children have sense, before we exact from them themes and discourses upon literary subjects? There is no danger, that those who acquire a variety of knowledge and numerous ideas should not be able to find words to express them; but those who are compelled to find words before they have ideas are in a melancholy situation. To form a style is but a vague idea: practice in composition will certainly confer ease in writing upon those who write when their minds are full of ideas; but the practice of sitting with a melancholy face with pen in hand, waiting for inspiration, will not much advance the pupil in the art

of writing. We should not recommend it to a preceptor to require regular themes at stated periods from his pupils; but whenever he perceives that a young man is struck with any new ideas or new circumstances, when he is certain that his pupil has acquired a fund of knowledge, when he finds in conversation that words flow readily upon certain subjects, he may without danger upon these subjects excite his pupil to try his powers of writing. These trials need not be frequently made; when a young man has once acquired confidence in himself as a writer, he will certainly use his talent whenever proper occasions present themselves. The perusal of the best authors in the English language will give him, if he adhere to these alone, sufficient powers of expression. The best authors in the English language are so well known, that it would be useless to enumerate them. Dr. Johnson says, that whoever would acquire a pure English style, must give his days and nights to Addison. We do not, however, feel this exclusive preference for Addison's melodious periods: his page is ever elegant, but sometimes it is too diffuse. Hume, Blackstone, and Smith,

have a proper degree of strength and energy combined with their elegance. Gibbon says, that the perfect composition and well-turned periods of Dr. Robertson excited his hopes, that he might one day become his equal in writing; but "the calm philosophy, the "careless, inimitable beauties of my friend "and rival Hume, often forced me to close "the volume with a mixed sensation of de- "light and despair." From this testimony we may judge, that a simple style appears to the best judges to be more difficult to attain, and more desirable, than that highly ornamented diction to which writers of inferior taste aspire. Gibbon tells us with great candour, that his friend Hume advised him to beware of the rhetorical style of French eloquence. Hume observed that the English language and English taste do not admit of this profusion of ornament.

Without meaning to enter at large into the subject, we have offered these remarks upon style for the advantage of those who are to direct the taste of young readers; what they admire when they read, they will probably imitate when they write. We objected to works of criticism for young chil-

dren, but we should observe, that at a later period of education they will be found highly advantageous. It would be absurd to mark the precise age at which Blair's Lectures, or Condillac's *Art d'Ecrire*, ought to be read, because this should be decided by circumstances, by the progress of the pupils in literature and by the subjects to which their attention happens to have turned. Of these, preceptors and the pupils themselves must be the most competent judges. From the same wish to avoid all pedantic attempts to dictate, we have not given any regular course of study in this chapter. Many able writers have laid down extensive plans of study, and have named the books that are essential to the acquisition of different branches of knowledge. Amongst others we may refer to Dr. Priestley's, which is to be seen at the end of his *Essays on Education*. We are sensible that order is necessary in reading, but we cannot think that the same order will suit all minds, nor do we imagine that a young person cannot read to advantage unless he pursue a given course of study. Men of sense will not be intolerant in their love of learned order.

If parents would keep an accurate list of the books which their children read, and of the ages at which they are read, it would be of essential service in improving the art of education. We might then mark the progress of the understanding with accuracy, and discover, with some degree of certainty, the circumstance on which the formation of the character and taste depend. Swift has given us a list of the books which he read during two years of his life ; we can trace the ideas that he acquired from them in his *Laputa*, and in other parts of *Gulliver's Travels*. Gibbon's *Journal of his studies*, and his *Account of Universities*, are very instructive to young students. So is the *Life of Franklin* written by himself. *Madame Roland* has left a history of her education ; and in the books she read in her early years we see the formation of her character. *Plutarch's Lives*, she tells us, first kindled republican enthusiasm in her mind ; and she regrets that, in forming her ideas of universal liberty, she had only a partial view of affairs. She corrected these enthusiastic ideas during the last moments of her life in prison. Had the impression which her study of the Roman

History made upon her mind been known to an able preceptor, it might have been corrected in her early education. When she was led to execution, she exclaimed, as she passed the statue of Liberty, "Oh, Liberty, what crimes are committed in thy name!"*

Formerly it was wisely said, "Tell me what company a man keeps, and I will tell you what he is;" but since literature has spread a new influence over the world, we must add, "Tell me what company a man has kept, and what books he has read, and I will tell you what he is."

* "Oh Liberté, que de forfaits on commet en ton nom!"

V. Appel à l'Impartielle Postérité.

CHAPTER XIII.

ON GRAMMAR AND CLASSICAL
LITERATURE.

As long as gentlemen feel a deficiency in their own education, when they have not a competent knowledge of the learned languages, so long must a parent be anxious that his son should not be exposed to the mortification of appearing inferior to others of his own rank. It is in vain to urge, that language is only the key to science; that the names of things are not the things themselves; that many of the words in our own language convey scarcely any or at best but imperfect ideas; that the true genius, pronunciation, melody, and idiom of Greek, are unknown to the best scholars, and that it cannot reasonably be doubted, that if Homer or Xenophon were to hear their works read by a professor of Greek, they would mistake them for the sounds of an

unknown language. All this is true, but it is not the ambition of a gentleman to read Greek like an ancient Grecian, but to understand it as well as the generality of his contemporaries ; to know whence the terms of most sciences are derived, and to be able, in some degree, to trace the progress of mankind in knowledge and refinement, by examining the extent and combination of their different vocabularies.

In some professions Greek is necessary ; in all a certain proficiency in Latin is indispensable ; how, therefore, to acquire this proficiency in the one, and a sufficient knowledge of the other, with the least labour, the least waste of time, and the least danger to the understanding, is the material question. Some school-masters would add, that we must expedite the business as much as possible ; of this we may be permitted to doubt. *Festina lente* is one of the most judicious maxims in education, and those who have sufficient strength of mind to adhere to it, will find themselves at the goal, when their competitors, after all their bustle, are panting for breath, or lashing their restive steeds. We see some untutored children start for-

ward in learning with rapidity: they seem to acquire knowledge at the very time it is wanted, as if by intuition; whilst others, with whom infinite pains have been taken, continue in dull ignorance: or, having accumulated a mass of learning, are utterly at a loss how to display, or how to use, their treasures. What is the reason of this phenomenon? and to which class of children would a parent wish his son to belong? In a certain number of years, after having spent eight hours a day in “*durance vile*,” by the influence of bodily fear, or by the infliction of bodily punishment, a regiment of boys may be drilled by an indefatigable usher into what are called scholars; but, perhaps, in the whole regiment, not one shall ever distinguish himself, or ever emerge from the ranks. Can it be necessary to spend so many years, so many of the best years of life, in toil and misery? We shall calculate the waste of time which arises from the study of ill-written, absurd grammar, and exercise-books; from the habits of idleness contracted by school-boys; and from the custom of allowing holidays to young students; and we shall compare the result

of this calculation with the ~~time~~ really necessary for the attainment of the same quantity of classical knowledge by rational methods. We do not enter into this comparison with any invidious intention, but simply to quiet the apprehensions of parents; to show them the possibility of their children's attaining a certain portion of learning within a given number of years, without the sacrifice of health, happiness, or the general powers of the understanding.

At all events, may we not begin by imploring the assistance of some able and friendly hand to reform the present generation of grammars and school-books? For instance, is it indispensably necessary that a boy of seven years old should learn by rote, that "relative sentences are independent; "*i. e.* no word in a relative sentence is "governed either of verb, or adjective, that "stand in another sentence, or depends "upon any appurtenances of the relative; and "that the English word 'That' is always a "relative when it may be turned into *which* "in good sense, which must be tried by "reading over the English sentence *warily*, "and judging how the sentence will bear

“ it; but when it cannot be altered, *salvo*
“ *sensu*, it is a conjunction?” Cannot we, for
pity’s sake, to assist the learner’s memory,
and to improve his intellect, substitute some
sentences a little more connected, and per-
haps a little more useful, than the following?

“ I have been a soldier—You have bab-
bled—Has the crow ever looked white?—
“ Ye have exercised—Flowers have withered
“ —We were in a passion—Ye lay down—
“ Peas were parched—The lions did roar a
“ while ago.”

In a book of Latin exercises,* the preface
to which informs us that “ it is intended to
“ contain such precepts of morality and
“ religion as ought most industriously to be
“ inculcated into the heads of all learners,
“ contrived so as that children may, as it
“ were, insensibly suck in such principles
“ as will be of use to them afterwards in
“ the manly conduct and ordering of their
“ lives:” we might expect somewhat more
of pure morality and sense, with rather
more elegance of style, than appear in the
following sentences.

* Garretson’s Exercises, the tenth edition,

“ I struck my sister with a stick, and was
“ forced to flee into the woods ; but when I
“ had tarried there awhile, I returned to my
“ parents, and submitted myself to their
“ mercy, and they forgave me my offence.”

“ When my dear mother, unknown to
“ my father, shall send me money, I will
“ pay my creditors their debts, and provide
“ a supper for all my friends in my chamber,
“ without my brother’s consent, and will
“ make presents to all my relations.

So the measure of maternal tenderness is the sum of money, which the dear mother, unknown to her husband, shall send to her son ; the measure of the son’s generosity is the supper he is to give to all his friends in his chamber, exclusive of his poor brother, of whose offence we are ignorant. His munificence is to be displayed in making presents to all his relations, but in the mean time he might possibly forget to pay his debts ; for “ justice is a slow-paced virtue, “ and cannot keep pace with generosity.”

A reasonable notion of punishment, and a disinterested love of truth, is well introduced by the following picture. “ My “ master’s countenance was greatly changed

“ when he found his beloved son guilty of
“ a lie. Sometimes he was pale with anger,
“ sometimes he was red with rage; and in
“ the mean time, he, poor boy, was tremb-
“ ling,” (for what?) “ for fear of punish-
“ ment.” Could the ideas of punishment
and vengeance be more effectually joined,
than in this portrait of the master red with
rage? After truth has been thus happily
recommended, comes honesty. “ Many
“ were fellow soldiers with valiant Jason
“ when he stole the golden fleece: many
“ were companions with him, but he bore
“ away the glory of the enterprize.”

* Valour, theft, and glory, are here happily
combined. It will avail us nothing to ob-
serve, that the golden fleece has an allego-
rical meaning, unless we can explain satis-
factorily the nature of an allegorical theft:
though to our classical taste this valiant
Jason may appear a glorious hero, yet to
the simple judgment of children he will
appear a robber. It is fastidious, however,
to object to Jason in the exercise-book,
when we consider what children are to hear,
and to hear with admiration, as they advance
in their study of poetry and mythology.

Lessons of worldly wisdom are not forgotten in our manual, which professes us to teach “ *the manly conduct and ordering of life*” to the rising generation. “ Those men,” we are told, “ who have the most money, obtain the greatest honour amongst men.” But then again, “ A poor man is as happy without riches, *if* he can enjoy contentedness of mind, as the richest earl that coveteth greater honour.” It may be useful to put young men upon their guard against hypocrites and knaves ; but it is necessary to tell school-boys, that “ it concerneth me, and all men, to look to ourselves ; for the world is so full of knaves and hypocrites, that he is hard to be found that may be trusted !” That “ they who behave themselves the most warily of all men, and that live more watchfully than others, may happen to do something which (if it be divulged) may very much damnify their reputation ?” A knowledge of the world may be early requisite ; but is it not going too far to assure young people, that “ the nations of the world are at this time come to that pass of wickedness,

“ that the earth is like Hell, and many men
 “ have degenerated into devils?”

A greater variety of ridiculous passages from his tenth edition of Garretson's Exercise-book, might be selected for the reader's entertainment ; but the following specimens will be sufficient to satisfy him, that by this original writer natural history is as well taught as morality.

Man. “ Man is a creature of an upright
 “ body ; he walketh upright when he is in a
 “ journey ; and when night approacheth he
 “ lieth flat, and sleepeth.”

Horses. “ A journey an hundred and
 “ fifty miles long tireth an horse that hath
 “ not had a moderate feed of corn.”

Air, Earth, Fire, and Water. “ The air
 “ is nearer the earth than the fire ; but the
 “ water is placed nearest to the earth, be-
 “ cause these two elements compose but one
 “ body.”

It is an easy task, it will be observed, to
 ridicule absurdity. It is easy to pull down
 what has been ill-built ; but if we leave the
 ruins for others to stumble over, we do little
 good to society. Parents may reasonably

say, if you take away from our children the books they have, give them better. They are not yet to be had ; but if a demand for them be once excited, they will soon appear.* Parents are now convinced, that the first books which children read make a lasting impression upon them ; but they do not seem to consider spelling-books, and grammars, and exercise-books, as books, but only as tools for different purposes : these tools are often very mischievous ; if we could improve them we should get our work much better done. The barbarous translations, which are put as models for imitation into the hands of school-boys, teach them bad habits of speaking and writing, which are sometimes incurable. For instance, in the fourteenth edition of Clarke's *Cornelius Nepos*, which the preface informs us was written by a man full of indignation for the common practices of grammar-schools, by a man who laments that youth should spend their time “ in tossing over the leaves of a “ dictionary, and hammering out such a lan-

* Since the first edition of this work, we have seen with pleasure an *English Grammar—English Exercises—and a Key to the English Exercises*, by Mr. Lindley Murray.

“guage as the Latin,” we might expect some better translation than the following to form the young student’s style.

“Nobody ever heard any other entertainment for the ears at *his* (Atticus’s) meals than a reader ; which we truly think very pleasant. Nor was there ever a supper at his house without some reading, that his guests might be entertained in their minds as well as their stomachs ; *for* he invited those whose manners were not different from his own.”

“He (Atticus) likewise had a touch at poetry, that he might not be unacquainted with this pleasure we suppose. *For* he has related in verses the lives of those who excelled the Roman people in honour, and the greatness of their exploits. *So* that he has described, under each of their images, their actions and offices in no more than four or five verses, *which* is scarcely to be believed *that* such great things could be so briefly delivered.”

Those who in reading these quotations have perhaps exclaimed, “Why must we go through this farrago of nonsense ?” should reflect, that they have now wasted but a few

minutes of their time upon what children are doomed to study for hours and years. If a few pages disgust, what must be the effect of volumes in the same style ! and what sort of writing can we expect from pupils who are condemned to such reading ? The analogy of ancient and modern languages differs so materially, that a literal translation of any ancient author can scarcely be tolerated. Yet, in general, young scholars are under a necessity of *rendering* their Latin lessons into English, word for word, faithful to the taste of their dictionaries, or the notes in their translations. This is not likely to improve the freedom of their English style ; nor, what is of much more consequence, is it likely to preserve in the pupil's mind a taste for literature. It is not the time that is spent in poring over lexicons, it is not the multiplicity of rules learnt by rote, nor yet is it the quantity of Latin words crammed into the memory, which can give the habit of attention, or the power of voluntary exertion : without these you will never have time enough to teach ; with them there will always be time enough to learn. One half hour's vigorous application is worth a whole

day's constrained and yawning *study*. If we compare what from experience we know can be done by a child of ordinary capacity in a given time, with what he actually does in school-hours, we shall be convinced of the enormous waste of time incident to the common methods of instruction. Tutors are sensible of this; but they throw the blame upon their pupils. "You could have learned your lesson in half the time if you had chosen it." The children also are sensible of this, but they are not able or willing to prevent the repetition of the reproach. But exertion does not always depend upon the will of the boy; it depends upon his previous habits, and upon the strength of the immediate motive which acts upon him. Some children of quick abilities, who have too much time allotted for their classical studies, are so fully sensible themselves of the pernicious effect this has upon their activity of mind, that they frequently defer *getting their lessons* to the last moment, that they may be forced by a sufficient motive to exert themselves. In *classes* at public schools, the quick and the slow, the active and indolent, the stumbling

and the sure-footed, are all yoked together, and are forced to keep pace with one another; stupidity may sometimes be dragged along by the vigour of genius; but genius is more frequently chained down by the weight of stupidity. We are well aware of the difficulties with which the public preceptor has to contend; he is often compelled by his situation to follow ancient usage, and to continue many customs which he wishes to see reformed. Any reformation in the manner of instruction in these public seminaries must be gradual, and will necessarily follow the conviction that parents may feel of its utility. Perhaps nothing can be immediately done, more practicably useful, than to simplify grammar, and to lighten as much as possible the load that is laid upon the memory. Without a multiplicity of masters it would be impossible to suit instruction to the different capacities and previous acquirements of a variety of pupils; but in a private education, undoubtedly the task may be rendered much easier to the scholar and to the teacher; much jargon may be omitted, and what appears from want of explanation to be jargon, may be

rendered intelligible by proper skill and attention: during the first lessons in grammar, and in Latin, the pupil need not be disgusted with literature, and we may apply all the principles which we find on other occasions successful in the management of the attention. Instead of keeping the attention feebly obedient for an idle length of time, we should fix it decidedly by some sufficient motive for as short a period as may be requisite to complete the work that we would have done. As we apprehend, that even where children are to be sent to school, it will be a great advantage to them to have some general notions of grammar, to lead them through the labyrinth of common school-books, we think that we shall do the public preceptor an acceptable service, if we point out the means by which parents may, without much labour to themselves, render the first principles of grammar intelligible and familiar to their children.

We may observe, that children pay the strictest attention to the analogies of the language that they speak. Where verbs are defective or irregular, they supply the parts that are wanting with wonderful facility, ac-

cording to the common form of other verbs. They make all verbs regular. I goed, I readed, I writed, &c. By a proper application of this faculty much time may be saved in teaching children grammar; much perplexity, and much of that ineffectual labour which stupifies and dispirits the understanding. By gentle degrees, a child may be taught the relations of words to each other in common conversation, before he is presented with the first sample of grammatical eloquence in Lily's Accidence—"There be eight parts of speech." A phrase which in some parts of this kingdom would perhaps be understood, but which to the generality of boys who go to school conveys no meaning, and is got by heart without reflection, and without advantage. A child can, however, be made to understand these formidable parts of speech, if they are properly introduced to his acquaintance: he can comprehend, that some of the words which he hears express *that something is done*; he will readily perceive, that if something is done, *somebody*, or something must do it; he will distinguish with much facility the word in any

common sentence which expresses an action, and that which denotes the agent. Let the reader try the experiment immediately upon any child of six or seven years old who has *not* learned grammar, and he may easily ascertain the fact.

A few months ago, Mr. — gave his little daughter H—, a child of five years old, her first lesson in English grammar; but no alarming book of grammar was produced upon the occasion, nor did the father put on an unpropitious gravity of countenance. He explained to the smiling child the nature of a verb, a pronoun, and a substantive.

Then he spoke a short, familiar sentence, and asked H— to try if she could find out which word in it was a verb, which a pronoun, and which a substantive. The little girl found them all out most successfully, and formed no painful associations with her first grammatical lesson. Though our pupil may easily understand, he will easily forget our first explanations; but provided he understand them at the moment, we should pardon his forgetfulness, and we should patiently repeat the same exercise

several days successively ; a few minutes at each lesson will be sufficient ; and the simplest sentences, such as children speak themselves, will be the best examples. Mr. —, after having talked four or five times, for a few minutes at a time, with his son S—, when S— was between five and six years old, about grammar, asked him if he knew what a pronoun meant ? The boy answered, “ A word that is said instead of “ a substantive.” As these words might have been merely remembered by rote, the father questioned his pupil further, and asked him to name any pronoun that he recollected. S— immediately said, “ *I* a “ pronoun.” “ Name another,” said his father. The boy answered after some pause, as if he doubted whether it was or was not a pronoun, *A*. Now, it would have been very imprudent to have made a sudden exclamation at the child’s mistake. The father, without showing any surprise, gently answered, “ No, my dear, *a* does not stand in “ the place of any substantive. We say *a* “ *man*, but the word *a* does not mean a *man*, “ when it is said by itself ? Does it ?”

S—. No.

Father. Then try if you can find out a word that does.

S——. *He*, and *Sir*.

Sir does stand, in conversation, in the place of a man or gentleman ; therefore the boy, even by this mistake, showed that he had formed, from the definition that had been given to him, a general idea of the nature of a pronoun, and at all events he exercised his understanding upon the affair, which is the principal point we ought to have in view.

An interjection is a part of speech familiar to children. Mr. Horne Tooke is bitter in his contempt for it, and will scarcely admit it into civilized company. “ The brutish, “ inarticulate interjection, which has nothing “ to do with speech, and is only the miserable refuge of the speechless, has been “ permitted to usurp a place amongst words, “ &c.”—“ The neighing of a horse, the “ lowing of a cow, the barking of a dog, “ the purring of a cat, sneezing, coughing, “ groaning, shrieking, and every other involuntary convulsion with oral sound, have “ almost as good a title to be called parts of “ speech as interjections have.”

Mr. Horne Tooke would have been pleased with the sagacity of a child of five years old (S——) who called *laughing* an interjection. Mr.—— gave S—— a slight pinch, in order to produce “an involuntary convulsion with oral sound.” And when the interjection Oh! was uttered by the boy, he was told by his father, that the word was an interjection; and, that “any word or noise, that expresses a sudden feeling of the mind, may be called an interjection.” S—— immediately said, “Is laughing an interjection, then?” We hope that the candid reader will not imagine, that we produce these *sayings* of children of four or five years old, without some sense of the danger of ridicule; but we wish to give some idea of the sort of simple answers which children are likely to make in their first grammatical lessons. If too much is expected from them, the disappointment, which must be quickly felt, and will be quickly shown by the preceptor, will discourage the pupil. We must repeat, that the first steps should be frequently retraced; a child should be *for some weeks* accustomed to distinguish an active verb, and its agent,

or nominative case, from every other word in a sentence before we attempt to advance. The objects of actions are the next class of words that should be selected.

The fanciful, or at least what appears to the moderns fanciful, arrangement of the cases amongst grammarians may be dispensed with for the present. The idea that the nominative is a direct, upright *case*, and that the genitive declines with the smallest obliquity from it: the dative, accusative, and ablative, falling farther and farther from the perpendicularity of speech, is a species of metaphysics not very edifying to a child. Into what absurdity men of abilities may be led, by the desire of explaining what they do not sufficiently understand, is fully exemplified in other sciences as well as grammar.

The discoveries made by the author of *Epea Pteroenta* show the difference between a vain attempt to substitute analogy and rhetoric in the place of demonstration and common sense. When a child has been patiently taught in conversation to analyse what he says, he will take great pleasure in the exercise of his new talent ; he will soon

discover, that the cause of the action does not always come before the verb in a sentence; that sometimes it follows the verb. “ John “ beats Thomas,” and “ Thomas is beaten “ by John,” he will perceive mean the same thing; he may, with very little difficulty, be taught the difference between a verb active and a verb passive; that one brings first before the mind the person or thing which performs the action, and the other represents in the first place the person or thing upon whom the action is performed. A child of moderate capacity, after he has been familiarised to this general idea of a verb active and passive, and after he has been taught the names of the cases, will probably, without much difficulty, discover that the nominative case to a passive verb becomes the accusative case to a verb active. “ School-masters are “ plagued by boys.” A child sees plainly that school-masters are the persons upon whom the action of plaguing is performed, and he will convert the sentence readily into “ boys plague school-masters.”

We need not be in any hurry to teach our pupil the names of the cases; technical grammar may be easily learned, after a general

idea of rational grammar has been obtained. For instance, *the verb* means only *the word*, or the principal word in a sentence: a child can easily learn this, after he has learnt what is meant by a sentence; but it would be extremely difficult to make him comprehend it before he could distinguish a verb from a noun, and before he had any idea of the structure of a common sentence. From easy we should proceed to more complicated sentences. The grammatical construction of the following lines, for example, may not be immediately apparent to a child:—

“What modes of sight betwixt each vast extreme,
“The mole’s dim curtain, and the lynx’s beam;
“Of smell the headlong lioness between,
“And hound sagacious on the tainted green.”

“*Of smell.*” A girl of ten years old (C——) was asked if she could tell what substantive the word “*of*” relates to; she readily answered, “*modes.*” C—— had learned a general idea of grammar in conversation, in the manner which we have described. It is asserted, from experience, that this method of instructing children in grammar by conversation is not only prac-

ticable, but perfectly easy, and that the minds of children are adapted to this species of knowledge. During life we learn with eagerness whatever is congenial with our present pursuits, and the acquisition of language is one of the most earnest occupations of childhood. After distinct and ready knowledge of the verb and nominative case have been acquired, the pupil should be taught to distinguish the object of an action, or, in other words, the objective or accusative case. He should be exercised in this, as in the former lessons, repeatedly, till it becomes perfectly familiar; and he should be encouraged to converse about these lessons, and to make his own observations concerning grammar, without fear of the preceptor's peremptory frown, or positive reference to "*his rules*." A child of five years old was asked what the word "*Here!*" meant; he answered, "It means to give a thing."

"When I call a person, as John! John!" said a boy of nine years old (S——), "it seems to me that the vocative case is both the verb and its accusative case." A boy

who had been ever checked by his tutor for making his own observations upon the mysterious subject of grammar, would never have dared to have thought or to have uttered a new thought so freely. Forcing children to learn any art or science by rote, without permitting the exercise of the understanding, most materially injures their powers both of reasoning and of invention. We acknowledge that Wilkins and Tooke have shown masters how to teach grammar a little better than it was formerly taught. Fortunately for the rising generation, all the words under the denomination of adverbs, prepositions, and conjunctions, which were absolute nonsense to us, may be easily explained to them, and the commencement of instruction need no longer lay the foundation of implicit acquiescence in nonsense. We refer to Mr. Horne Tooke's "*Epea Pteroenta*," forbearing to dilate upon the principles of his work, lest we should appear in the invidious light of authors who rob the works of others to adorn their own. We cannot help expressing a wish, that Mr. Horne Tooke would have the philanthropic patience to write an

elementary work in a *simple style*, unfolding his grammatical discoveries to the rising generation.

When children have thus, by gentle degrees, and by short and clear conversations, been initiated in general grammar, and familiarised to its technical terms, the first page of tremendous Lily will lose much of its horror. It has been taken for granted, that at the age of which we have been speaking, a child can read English tolerably well, and that he has been used to employ a dictionary. He may now proceed to translate from some easy books a few short sentences: the first word will probably be an adverb or preposition; either of them may readily be found in the Latin dictionary, and the young scholar will exult in having translated one word of Latin; but the next word, a substantive or verb, perhaps will elude his search. Now the grammar may be produced, and something of the various terminations of a noun may be explained. If *musam* be searched for in the dictionary, it cannot be found, but *musa* catches the eye, and with the assistance of the grammar it may be shown that the meaning of words

may be discovered by the united helps of the dictionary and grammar. After some days patient continuation of this exercise, the use of the grammar and of its uncouth collection of words and syllables will be apparent to the pupil ; he will perceive that the grammar is a sort of appendix to the dictionary. the grammatical formulæ may then, by gentle degrees, be committed to memory, and when once got by heart, they should be assiduously preserved in the recollection. After the preparation which we have recommended, the singular number of a declension will be learnt in a few minutes by a child of ordinary capacity ; and after two or three days repetition the plural number may be added. The whole of the first declension should be well fixed in the memory before the second is attempted. During this process a few words at every lesson may be translated from Latin to English ; and such nouns as are of the first declension may be compared with *musa*, and may be declined according to the same form. Tedious as this method may appear, it will in the end be found expeditious. Omitting some of the theoretic or didactic part of the grammar,

which should only be read, and which may be explained with care and patience, the whole of the declensions, pronouns, conjugations, the list of prepositions and conjunctions, interjections, some adverbs, the concords, and common rules of syntax, may be comprised with sufficient repetitions in about two or three hundred lessons of ten minutes each; that is to say ten minutes application of the scholar in the presence of the teacher. A young boy should never be set to learn a lesson by heart when alone. Forty hours! Is this tedious? If you are afraid of losing time, begin a few months earlier; but begin when you will, forty hours is surely no great waste of time: the whole, or even half of this short time, is not spent in the labour of getting jargon by rote; each day some slight advance is made in the knowledge of words, and in the knowledge of their combinations. What we insist upon is, that *nothing should be done to disgust the pupils*: steady perseverance, with uniform gentleness, will induce habit, and nothing should ever interrupt the regular return of the daily lesson. If absence, business, illness, or any other

cause, prevent the attendance of the teacher, a substitute must be appointed; the idea of relaxation on Sunday, or a holiday, should never be permitted. In most public seminaries above one-third, in some nearly one-half of the year is permitted to idleness; it is the comparison between severe labour and dissipation that renders learning hateful.

Johnson is made to say by one of his female biographers,* that no child loves the person who teaches him Latin; yet the author of this chapter would not take all the Doctor's fame, and all the lady's wit and riches, in exchange for the hourly, unfeigned, unremitting friendship, which he enjoys with a son who had no other master than his father. So far from being laborious or troublesome, he has found it an agreeable employment to instruct his children in grammar and the learned languages. In the midst of a variety of other occupations, half an hour every morning for many years, during the time of dressing, has been allotted to the instruction of boys of different ages in lan-

* Mrs. Piozzi

guages, and no other time has been spent in this employment. Were it asserted that these boys made *a reasonable progress*, the expression would convey no distinct meaning to the reader; we shall therefore mention an experiment tried this morning, November 8th, 1796, to ascertain the progress of one of these pupils. Without previous study he translated twenty lines of the story of Ceyx and Alcyone, from Ovid, consulting the dictionary only twice: he was then desired to translate the passage which he had read into English verse; and in two or three hours he produced the following version. Much of the time was spent in copying the lines fairly, as this opportunity was taken of exciting his attention to writing and spelling, to associate the habit of application with the pleasure of voluntary exertion. The *curious* may, if they think it worth their while, see the various *readings* and corrections of the translation, which were carefully preserved not as "*Curiosities of Literature*," but for the sake of truth, and with a desire to show that the pupil had the patience to correct.*

* Appendix.

A *genius* may hit off a few tolerable lines ; but if a child is willing and able to criticise and correct what he writes, he shows that he selects his expressions from choice, and not from chance or imitation ; and he gives to a judicious tutor the certain promise of future improvement.

“ Far in a vale there lies a cave forlorn,
“ Which Phœbus never enters eve or morn :
“ The misty clouds inhale the pitchy ground,
“ And twilight lingers all the vale around.
“ No watchful cocks Aurora’s beams invite ;
“ No dogs, nor geese, the guardians of the night ;
“ No flocks nor herds disturb the silent plains ;
“ Within the sacred walls mute quiet reigns :
“ And murmuring Lethe soothing sleep invites,
“ In dreams again, the flying past delights.
“ From milky flowers that near the cavern grow,
“ Night scatters the collected sleep below.”

S——, the boy who made this translation was just ten years old ; he had made but three previous attempts in versification ; his reading in poetry had been some of Gay’s Fables, parts of the Minstrel, three odes of Gray, the Elegy in a Country Church-yard, the Tears of Old May-day, and parts of the second volume of Dr. Darwin’s Botanic Garden : Dryden’s translation of the fable

of Ceyx and Alcyone he had never seen ; the book had always been locked up. Phædrus and Ovid's Metamorphoses were the whole of his Latin erudition. These circumstances are mentioned thus minutely, to afford the inquisitive teacher materials for an accurate estimate of the progress made by our method of instruction. Perhaps most boys of S——'s age in our great public seminaries, would, upon a similar trial, be found superior. Competition in the art of translation is not our object ; our object is, to show, that half an hour a day, steadily appropriated to grammar and Latin, will be sufficient to secure a boy of this age from any danger of ignorance in classical learning ; and that the ease and shortness of his labour will prevent that disgust which is too often induced by forced and incessant application. We may add, that some attention to the *manner* in which the pupils repeat their Latin lessons has been found advantageous ; as they were never put in bodily fear by the impatience of a pedagogue, they had leisure and inclination to read and recite without awkward gestures, and discordant tones. The whining tones and convulsive gestures often contracted

by boys during the agony of repeating their long lessons, are not likely to be advantageous to the rising generation of orators. Practice, and the strong motive of emulation, may in a public seminary conquer these bad habits. After the pupil has learned to speak ill, he *may* be taught to speak well; but the chances are against him: and why should we have the trouble of breaking bad habits? it is much easier to prevent them. In private education, as the preceptor has less chance of curing his pupil of the habit of speaking ill, he should be peculiarly attentive to give the child constant habits of speaking and reading well. It is astonishing, that parents, who are extremely intent upon the education of their children, should overlook some of the essential means of success. A young man, with his head full of Latin and law, will make but a poor figure at the bar or in parliament, if he cannot enunciate distinctly, and if he cannot speak good English extempore, or produce his learning and arguments with grace and propriety. It is in vain to expect that a boy should speak well in public, who cannot in common conversation utter three connected sentences without a

false concord, or a provincial idiom ; he may be taught with much care and cost to speak *tripod* sentences ;* but bring the young orator to the test, bring him to actual business, rouse any of his passions, throw him off his guard, and then listen to his language ; he will forget instantly his reading-master, and all his rules of pronunciation and rhetoric, and he will speak the language to which he has been most accustomed. No master will then be near him to regulate the pitch and tones of his voice ; we cannot believe that even Caius Gracchus could, when he was warmed by passion, have listened to Licinius's pitch-pipe.† Example, and constant attention to their manner of speaking in common conversation, we apprehend to be the most certain methods of preparing young men for public speakers. Much of the time that is spent in teaching boys to walk upon stilts might be more advantageously employed in teaching them to walk well without them. It is all very well whilst the pupil is under the protection of his preceptor. The actor on the stage is admired

* V. Blair.

† V. Plutarch,

whilst he is elevated by the cothurnus ; but young men are not to exhibit their oratorical talents always with the advantages of stage effect and decorations. We should imagine that much of the diffidence felt by young men of abilities, when they first arise to speak in public, may be attributed to their immediate perception of the difference between scholastic exhibitions and the real business of life ; they feel that they have learned to speak two languages which must not, upon any account, be mixed together ; the one, the vulgar language of common conversation ; the other, the refined language of oratorical composition ; the first they are most inclined to use when they are agitated ; and they are agitated when they rise to speak before numbers ; consequently, there is an immediate struggle between custom and institution. Now, a young man, who in common conversation in his own family, has never been accustomed to hear, or to speak vulgar or ungrammatical language, cannot possibly apprehend that he shall suddenly utter ridiculous expressions : he knows that, if he speaks at all, he shall at least speak

good English ; and he is not afraid that, if he is pursued, he shall be obliged to throw away his cumbrous stilts. The practice of speaking in public, we are sensible, is a great advantage ; but the habit of speaking accurately in private is of still greater consequence : this habit depends upon the early and persevering care of the parent and preceptor. There is no reason why children should not be made at the same time good scholars and good speakers ; nor is there any reason why boys, whilst they learn to write Latin, should be suffered to forget how to write English.

It would be a great advantage to the young classical scholar if his Latin and English literature were mixed ; the taste for ancient authors and for modern literature ought to be cultivated at the same time ; and the beauties of composition, characteristic of different languages, should be familiarised to the student. Classical knowledge and taste afford such continual and innocent sources of amusement, that we should be extremely sorry that any of our pupils should not enjoy them in their fullest extent ; but we do not

include a talent for Latin composition amongst the *necessary* accomplishments of a gentleman. There are situations in life where facility and elegance in writing Latin may be useful, but such situations are not common : when a young man is intended for them, he may be trained with more particular assiduity to this art : perhaps, for this purpose, the true Busbyean method is the best. The great Latin and Greek scholars of the age have no reason to be displeased by the assertion, that classical proficiency equal to their own is not a *necessary* accomplishment in a gentleman ; if their learning become more rare, it may thence become more valuable. We see no reason why there should not be Latinists as well as special pleaders.

We have not laid down any course of classical study ; those who consider the order in which certain authors are read as of material consequence in the education of scholars, may consult Milton, Mrs. Macaulay, " Milne's Well-bred Scholar," &c. where they will find precise directions.

We have *lately* seen a collection of exer-

cises for boys,* which in some measure supplies the defects of Mr. Garretson's curious performance; we wish most earnestly that dictionaries were improved. The author of "*Stemmata Latinitatis*" has conferred an essential service on the public; but still there is wanting a dictionary for schools, in which elegant and proper English might be substituted for the barbarous translations now in use. Such a dictionary could not be compiled, we should think, without an attention to the course of books that are most commonly used in schools. The first meanings given in the dictionary should suit the first authors that a boy reads: this may probably be a remote or metaphoric meaning: then the radical word should be mentioned, and it would not cost a master any great trouble to trace the genealogy of words to the parent stock.

Cordery is a collection of such mean sentences, and uninstructional dialogue, as to be totally unfit for boys. Comenius's "*Visible World displayed*" is far superior, and might, with proper alterations and better

* Valpy's Exercises.

prints, become a valuable *English* school-book. Both these books were intended for countries where the Latin language was commonly spoken, and consequently they are filled with the terms necessary for domestic life and conversation ; for this very reason, they are not good introductions to the classics. Selections from Bailey's *Phædrus* will be proper for young beginners, upon account of the glossary. We prefer this mode of assisting them with glossaries to the use of translations, because they do not induce indolent habits ; and yet they prevent the pupil from having unnecessary labour. Translations always give the pupil more trouble in the end, than they save in the beginning. The glossary to Bailey's *Phædrus*, which we have just mentioned, wants much to be modernized, and the language requires to be improved. Mr. Valpy's "Select Sentences" would be much more useful if they had a glossary annexed. As they are, they will, however, be useful after *Phædrus*. Ovid's *Metamorphoses*, with all its monstrous faults, appears to be the best introduction to the Latin classics, and to heathen mythology. Norris's Ovid may be safely put into the

hands of children, as it is a selection of the least exceptionable fables. To accustom boys to read poetry and prose nearly at the same period is advantageous. Cornelius Nepos, a *crabbed* book, but useful from its brevity, and from its being a proper introduction to Grecian and Roman history, may be read nearly at the same time with Ovid's *Metamorphoses*. After Ovid, the pupil may begin Virgil, postponing some of the *Eclogues*, and all the *Georgics*.

We recommend that some English books should be put into the hands of boys whilst they are going through Phædrus, Ovid, and Cornelius Nepos, which may suit with the ideas they acquire from these Latin authors. Plutarch's *Lives*, for instance, will be useful and interesting. When we mention Plutarch's *Lives*, we cannot help recollecting how many great people have acknowledged the effect of this book in their early education, Charles the Twelfth, Rousseau, Madame Roland, Gibbon, we immediately remember, and we are sure we have noticed many others. An abridgment of Plutarch, by Mrs. Helme, which we have looked into, appears (the preface excepted) to be well written: and

we see another abridgment of Plutarch advertised, which we hope may prove serviceable. Good prints to a Plutarch for children would be very desirable.

As an English introduction to mythology, we recommend the first volume of Lord Chesterfield's Letters, as a most elegant view of heathen mythology. But if there be any danger that the first volume should introduce the remainder of Lord Chesterfield's work to the inexperienced reader, we should certainly forbear the experiment: it would be far better for a young man never to be acquainted with a single heathen deity, than to purchase Lord Chesterfield's classical knowledge at the hazard of contamination from his detestable system of morals. Without his lordship's assistance, Mrs. Monsigny's *Mythology* can *properly* initiate the young pupil of either sex into the mysteries of ancient fable. The notes to Potter's *Æschylus* are also well suited to our purpose. In Dr. Darwin's "*Botanic Garden*" there are some beautiful poetic allusions to ancient gems and ancient fables, which must fix themselves in the memory, or the imagination of the pupil. The sooner they are read the better; we have

felt the advantage of putting them into the hands of a boy of nine or ten years old. The ear should be formed to English as well as to Latin poetry.

Classical poetry, without the knowledge of mythology, is unintelligible : if children study the one, they must learn the other. Divested of the charms of poetry, and considered without classical prepossession, mythology presents a system of crimes and absurdities, which no allegorical, metaphysical, or literal interpreters of modern times, can perfectly reconcile to common sense, or common morality ; but our poets have naturalized ancient fables, so that mythology is become essential even to modern literature. The associations of taste, though arbitrary, are not easily changed in a nation whose literature has attained to a certain pitch of refinement, and whose critical judgments must consequently have been for some generations traditional. There are subjects of popular allusion which poets and orators regard as common property ; to dispossess them of these seems impracticable, after time has sanctioned the prescriptive right. But new knowledge, and the cultivation of new sci-

ences, present objects of poetic allusion, which, skilfully managed by men of inventive genius, will oppose to the habitual reverence for antiquity the charms of novelty united to the voice of philosophy.*

In education we must, however, consider the actual state of manners in that world in which our pupils are to live, as well as our wishes, or our hopes of its gradual improvement.† With a little care preceptors may manage so as to teach mythology without in the least injuring their pupils. Children may be familiarised to the strange manners and strange personages of ancient fable, and may consider them as a set of beings who are not to be judged by any rules of morality, and who have nothing in common with ourselves. The caricatura of some of the passions, perhaps, will not shock children who are not used to their natural appearance ; they will pass over the stories of love and jealousy, merely because they do not un-

* V. Darwin's poetry.

† Since the above was written, we have seen a letter from Dr. Aikin to his son on the *morality* and *poetic merit* of the fable of Circe, which convinces us that the observations that we have hazarded are not premature.

derstand them. We should rather leave them completely unintelligible, than attempt, like Mr. Riley, in his *Mythological Pocket Dictionary for Youth*, to elucidate the whole at once, by assuring children that Saturn was Adam, that Atlas is Moses, and his brother Hesperus, Aaron; that Vertumnus and Pomona were Boaz and Ruth; that Mars *corresponds* with Joshua; that Apollo *accords* with David, since they both played upon the harp; that Mercury can be no other than our archangel Michael, since they both have wings on their arms and feet; that in short, to complete the concordance, Momus is a striking likeness of Satan. The ancients, Mr. Riley allows, have so much disfigured these personages, that it is hard to know many of the portraits again at first sight; however, he is persuaded that “the young student will find a peculiar gratification in tracing the likeness;” and he has kindly furnished us with a catalogue to explain the exhibition, and to guide us through his new pantheon.

As books of reference, the convenient size and compressed information of *pocket* mythological dictionaries will recommend

them to general use ; but we object to the miserable prints with which they are sometimes disgraced. The first impression made upon the imagination of children is of the utmost consequence to their future taste. The beautiful engravings* in Spence's *Poly-metis* will introduce the heathen deities in their most graceful and picturesque forms to the fancy. The language of Spence, though classical, is not entirely free from pedantic affectation, and his dialogues are perhaps too stiff and long-winded for our young pupils. But a parent or preceptor can easily select the useful explanations ; and, in turning over the prints they can easily associate some general notion of the history and attributes of the gods and goddesses, with their forms ; the little eager spectators will, as they crowd round the book, acquire imperceptibly all the necessary knowledge of mythology, imbibe the first pleasing ideas of taste, and store their imagination with classic imagery. The same precautions that are necessary to educate the eye, are also

* We speak of these engravings as *beautiful*, for the times in which they were done ; modern artists have arrived at higher perfection.

necessary to form the ear and understanding of taste. The first mythological descriptions which our pupils read, should be the best in their kind. Compare the following account of Europe in a pocket dictionary, with her figure in a poetical gem. “ Europa, “ the daughter of Agenor, king of the “ Phœnicians, and sister of Cadmus. This “ princess was so beautiful, that they say, “ one of the companions of Juno had robbed “ her of a pot of paint to bestow on this “ lady, which rendered her so handsome. “ She was beloved of Jupiter, who assumed “ the shape of a bull to run away with her ; “ swam over the sea with her on his back, “ and carried her into that part of the world “ now called Europe from her name.” So far the dictionary ; now for the poet.

“ Now lows a milk-white bull on Afric’s strand,
“ And crops with dancing head the daisy’d land ;
“ With rosy wreaths Europa’s hand adorns
“ His fringed forehead and his pearly horns :
“ Light on his back the sportive damsel bounds,
“ And pleas’d he moves along the flow’ry grounds ;
“ Bears with slow step his beauteous prize aloof,
“ Dips in the lucid flood his ivory hoof ;
“ Then wets his velvet knees, and, wading, laves
“ His silky sides amidst the dimpling waves.

“ While her fond train with beckoning hands deplore,
“ Strain their blue eyes, and shriek along the shore;
“ Beneath her robe she draws her snowy feet,
“ And, half reclining on her ermine seat,
“ Round his rais'd neck her radiant arms she throws,
“ And rests her fair cheek on his curled brows:
“ Her yellow tresses wave on wanton gales,
“ And high in air her azure mantle sails.”*

* Darwin. V. Botanic Garden.

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CHAPTER XIV.

ON GEOGRAPHY AND CHRONOLOGY.

THE usual manner of teaching Geography and Chronology may, perhaps, be necessary in public seminaries, where a number of boys are to learn the same thing at the same time; but what is learned in this manner is not permanent: something besides merely committing names and dates to the memory is requisite to make an useful impression upon the memory. For the truth of this observation an appeal is made to the reader. Let him recollect whether the Geography and Chronology which he learned, whilst a boy, are what he now remembers? Whether he has not obtained his present knowledge from other sources than the tasks of early years? When business, or conversation, calls upon us to

furnish facts accurate as to place and time, we retrace our former heterogeneous acquirements, and select those circumstances which are connected with our present pursuit; and thus we form, as it were, a nucleus round which other facts insensibly arrange themselves. Perhaps no two men in the world, who are well versed in these studies, connect their knowledge in the same manner. Relation to some particular country, some favourite history, some distinguished person, forms the connexion which guides our recollection, and which arranges our increasing nomenclature. By attending to what passes in our own minds, we may learn an effectual method of teaching without pain, and without any extraordinary burthen to the memory, all that is useful of these sciences. The details of history should be marked by a few chronological eras, and by a few general ideas of geography. When these have been once completely associated in the mind, there is little danger of their being ever disunited: the sight of any country will recall its history; and even from representations in a

map, or on the globe, when the mind is wakened by any recent event, a long train of concomitant ideas will recur.

The use of technical helps to the memory has been condemned by many, and certainly, when they are employed as artificers to supply the place of real knowledge, they are contemptible; but when they are used as indices to facts that have been really collected in the mind; when they serve to arrange the materials of knowledge in appropriate classes, and to give a sure and rapid clue to recollection, they are of real advantage to the understanding. Indeed, they are now so common, that pretenders cannot build the slightest reputation upon their foundation.

Ample materials are furnished in Gray's *Memoria Technica*, from which a short and useful selection may be made, according to the purposes which are in view. For children, the little ballad of the chapter of Kings will not be found beneath the notice of mothers who attend to education. If the technical terminations of Gray are inserted, they will never be forgotten, or may be

easily recalled.* We scarcely ever forget a ballad if the tune be popular.

For pupils at a more advanced age it will be found advantageous to employ technical helps of a more scientific construction. Priestley's Chart of Biography may, from time to time, be hung in their view. Smaller charts, upon the same plan, might be provided with a few names as land-marks ; these may be filled up by the pupil with such names as he selects from history ; they may be bound in octavo, like maps, by the middle, so as to unfold both ways. Prints, maps, and medals, when they are part of the constant furniture of a room, are seldom attended to by young people ; but when circumstances excite an interest upon a particular subject, then is the moment to produce

* Instead of

William the Conqueror long did reign,
And William his son by an arrow was slain,

Read

William the Conqueror long did reign,
And Rufus his son by an arrow was slain.

And so on, from Gray's *Memoria Technica*, to the end of the chapter.

the symbols which record and communicate knowledge.

Mrs. Ratcliffe, in her judicious and picturesque Tour through Germany, tells us, that in passing through the apartments of a palace which the Archduchess Maria Christina, the sister of the late unfortunate Queen of France, had left a few hours before, she saw spread upon a table a map of all the countries then included in the seat of war. The positions of the several corps of the allied armies were marked upon this chart with small pieces of various coloured wax. Can it be doubted, that the strong interest which this princess must have taken in the subject would for ever impress upon her memory the geography of this part of the world ?

How many people are there who have become geographers since the beginning of the present war ? Even the common newspapers disseminate this species of knowledge, and those who scarcely knew the situation of Brest harbour a few years ago, have consulted the map with that eagerness which approaching danger excites ; they consequently will tenaciously remember all the geographical knowledge they have thus

acquired. The art of creating an interest in the study of geography depends upon the dexterity with which passing circumstances are seized by a preceptor in conversation. What are maps or medals, statues, or pictures, but technical helps to memory? If a mother possess good prints, or casts of ancient gems, let them be shown to any persons of taste and knowledge who visit her; their attention leads that of our pupils; imitation and sympathy are the parents of taste, and taste reads in the monuments of art whatever history has recorded.

In the *Adele and Théodore* of Madame de Silleri a number of adventitious helps are described for teaching history and chronology. There can be no doubt that these are useful; and although such an apparatus cannot be procured by private families, fortunately the print-shops of every provincial town, and of the capital in particular, furnish even to the passenger a continual succession of instruction. Might not prints, assorted for the purposes which we have mentioned, be *lent* at circulating libraries.

To assist our pupils in geography, we prefer a globe to common maps. Might not a

cheap, portable, and convenient globe, be made of oiled silk, to be inflated by a common pair of bellows? Mathematical exactness is not requisite for our purpose; and though we could not pretend to the precision of our best globes, yet a balloon of this sort would compensate by its size and convenience for its inaccuracy. It might be hung by a line from its north pole to a hook screwed into the architrave of a door or window; and another string from its south pole might be fastened at a proper angle to the floor, to give the requisite elevation to the axis of the globe. An idea of the different projections of the sphere may be easily acquired from this globe in its flaccid state, and any part of it might be consulted as a map if it were laid upon a convex board of a convenient size. Impressions from the plates which are used for common globes, might be taken to try this idea without any great trouble or expense; but we wish to employ a much larger scale, and to have them five or six feet diameter. The inside of a globe of this sort might be easily illuminated, and this would add much to the novelty and beauty of its appearance.

In the country, with the assistance of a common carpenter and plasterer, a large globe of lath and plaster may be made for the instruction and entertainment of a numerous family of children. Upon this they should leisurely delineate from time to time, by their given latitudes and longitudes, such places as they become acquainted with in reading or conversation. The capital city, for instance, of the different countries of Europe ; the rivers, and the neighbouring towns ; till at last the outline might be added : for the sake of convenience, the lines, &c. may be first delineated upon a piece of paper, from which they may be accurately transferred to their proper places on the globe by the intervention of black-leaded paper, or by pricking the lines through the paper, and pouncing powdered blue through the holes upon the surface of the globe.

We enter into this detail, because we are convinced, that every addition to the active manual employment of children is of consequence, not only to their improvement, but to their happiness.

Another invention has occurred to us for teaching geography and history together.

Priestley's Chart of History, though constructed with great ingenuity, does not invite the attention of young people: there is an intricacy in the detail which is not obvious at first.* To remedy what appears to us a difficulty, we propose that eight-and-twenty, or perhaps thirty octavo maps of the globe should be engraved; upon these should be traced, in succession, the different situations of the different countries of the world, as to power and extent, during each respective century: different colours might denote the principal divisions of the world in each of these maps; the same colour always denoting the same country, with the addition of one strong colour; red, for instance, to distinguish that country which had at each period the principal dominion. On the upper and lower margin in these maps, the names of illustrious persons might be engraven in the manner of the biographical chart; and the reigning opinions of each century should

* Since this book was first printed, Le Sage has published a good set of charts, and Mr. Bell has translated from the German of F. Sass, an excellent chart of History, far superior to Priestley's. It is called "The Stream of Time;" printed for Vernor, Hood, and Sharpe.

also be inserted. Thus history, chronology, and geography, would appear at once to the eye in their proper order, and regular succession, divided into centuries and periods, which easily occur to recollection.

We forbear to expatiate upon this subject, as it has not been actually submitted to experiment ; carefully avoiding in the whole of this work to recommend any mode of instruction which we have not actually put in practice. For this reason, we have not spoken of the abbé Gaultier's method of teaching geography, as we have been able to obtain accounts of it only from the public papers, and from *réviews* ; we are, however, disposed to think favourably before-hand of any mode which unites amusement with instruction. We cannot forbear recommending, in the strongest manner, a few pages of Rollin in his "*Thoughts upon Education* ;" * which we think contain an excellent specimen of the manner in which a well-informed preceptor might lead his pupils a geographical, historical, botanical, and physiological tour upon the artificial globe.

We conclude this chapter of hints, by repeating what we have before asserted, that though technical assistance may be of ready use to those who are really acquainted with that knowledge to which it refers, it never can supply the place of accurate information.

The causes of the rise and fall of empires, the progress of human knowledge, and the great discoveries of superior minds, are the real links which connect the chain of political knowledge.

CHAPTER XV.

ON ARITHMETIC.

THE man who is ignorant that two and two make four is stigmatised with the character of hopeless stupidity ; except, as Swift has remarked, in the arithmetic of the Customs, where two and two do not always make the same sum.

We must not judge of the understanding of a child by this test ; for many children of quick abilities do not immediately assent to this proposition when it is first laid before them. “ Two and two make four,” says the tutor. “ Well child, why do you stare so ?”

The child stares because the word *make* is in this sentence used in a sense which is quite new to him ; he knows what it is to make a bow, and to make a noise, but how this active verb is applicable in the present case, where there is no agent to perform

the action, he cannot clearly comprehend. "Two and two *are* four," is more intelligible; but even this assertion the child, for want of a distinct notion of the sense in which the word *are* is used, does not understand. "Two and two *are called* four," is perhaps the most accurate phrase a tutor can use; but even these words will convey no meaning until they have been associated with the pupil's perceptions. When he has once perceived the combination of the numbers with real objects, it will then be easy to teach him that the words, *are called*, *are* and *make*, in the foregoing proposition, are synonymous terms.

We have chosen the first simple instance we could recollect, to show how difficult the words we generally use in teaching arithmetic must be to our young pupils. It would be an unprofitable task to enumerate all the puzzling, technical terms which, in their earliest lessons, children are obliged to hear, without being able to understand.

It is not from want of capacity that so many children are deficient in arithmetical skill, and it is absurd to say "such a child has no genius for arithmetic: such a

“ child cannot be made to comprehend any thing about numbers.” These assertions prove nothing, but that the persons who make them are ignorant of the art of teaching. A child’s seeming stupidity in learning arithmetic may, perhaps, be a proof of intelligence and good sense. It is easy to make a boy who does not reason, repeat by rote any technical rules which a common writing-master, with magisterial solemnity, may lay down for him; but a child who reasons will not be thus easily managed; he stops, frowns, hesitates, questions his master, is wretched and refractory, until he can discover why he is to proceed in such and such a manner: he is not content with seeing his preceptor make figures and lines upon a slate, and perform wondrous operations with the self-complacent dexterity of a conjurer. A sensible boy is not satisfied with merely seeing the total of a given sum, or the answer to a given question, *come out right*; he insists upon knowing why it is right. He is not content to be led to the treasures of science blindfold; he would tear the bandage from his eyes, that he might know the way to them again.

That many children, who have been thought to be slow in learning arithmetic, have, after their escape from the hands of pedagogues, become remarkable for their quickness, is a fact sufficiently proved by experience. We shall mention only one instance, which we happened to meet with whilst we were writing this chapter. John Ludwig, a Saxon peasant, was dismissed from school when he was a child, after four years' ineffectual struggle to learn the common rules of arithmetic. He had been, during this time, beaten and scolded in vain. He spent several subsequent years in common country labour, but at length some accidental circumstances excited his ambition, and he became expert in all the common rules, and mastered the rule of three and fractions, by the help of an old school-book, in the course of one year. He afterwards taught himself geometry, and raised himself, by the force of his abilities and perseverance, from obscurity to fame. We should like to see the book which helped Mr. Ludwig to conquer his difficulties.

Introductions to arithmetic are often calculated rather for adepts in science, than

for the ignorant. We do not pretend to have discovered any shorter method than what is common of teaching these sciences ; but in conformity with the principles which are laid down in the former part of this work, we have endeavoured to teach their rudiments without disgusting our pupils, and without habituating them to be contented with operations which are merely technical.

In arithmetic, as in every other branch of education, the principal object should be to preserve the understanding from implicit belief ; to invigorate its powers ; to associate pleasure with literature, and to induce the laudable ambition of progressive improvement.

As soon as a child can read, he should be accustomed to count, and to have the names of numbers early connected in his mind with the combinations which they represent. For this purpose he should be taught to add first by things, and afterwards by signs or figures. He should be taught to form combinations of things by adding them together one after another. At the same time that he acquires the names that

have been given to these combinations, he should be taught the figures or symbols that represent them. For example, when it is familiar to the child that one almond and one almond are called two almonds; that one almond and two almonds are called three almonds; and so on; he should be taught to distinguish the figures that represent these assemblages; that 3 means 1 and 2, &c. Each operation of arithmetic should proceed in this manner from individuals to the abstract notation of signs.

One of the earliest operations of the reasoning faculty is abstraction; that is to say, the power of classing a number of individuals under one name. Young children call strangers either men or women; even the most ignorant savages* have a propensity to generalise.

We may err either by accustoming our pupils too much to the consideration of tangible substances when we teach them arithmetic, or by turning their attention too much to signs. The art of forming a

* V. a strange instance quoted by Mr. Stewart, "On the Human Mind," p. 152.

sound and active understanding consists in the due mixture of facts and reflection. Dr. Reid has, in his "Essay on the Intellectual Powers of Man," page 297, pointed out with great ingenuity, the admirable œconomy of nature in limiting the powers of reasoning during the first years of infancy. This is the season for cultivating the senses ; and whoever, at this early age, endeavours to force the tender shoots of reason, will repent his rashness.

In the chapter "On Toys" we have recommended the use of plain, regular solids, cubes, globes, &c. made of wood, as play-things for children, instead of uncouth figures of men, women, and animals. For teaching arithmetic, half-inch cubes, which can be easily grasped by infant fingers, may be employed with great advantage ; they can be readily arranged in various combinations ; the eye can easily take in a sufficient number of them at once, and the mind is insensibly led to consider the assemblages in which they may be grouped, not only as they relate to number, but as they relate to quantity or shape ; besides, the terms which ~~are~~ borrowed from some of these shapes, as

squares, cubes, &c. will become familiar. As these children advance in arithmetic, to square or cube a number will be more intelligible to them than to a person who has been taught these words merely as the formula of certain rules. In arithmetic the first lessons should be short and simple; two cubes placed *above* each other, will soon be called two; if placed in any other situations near each other, they will still be called two; but it is advantageous to accustom our little pupils to place the cubes with which they are taught in succession, either by placing them upon one another, or lying in columns upon a table, beginning to count from the cube next to them, as we cast up in addition. For this purpose, a board about six inches long, and five broad, divided into columns perpendicularly by slips of wood three-eighths of an inch wide, and one-eighth of an inch thick, will be found useful; and if a few cubes, of colours *different from those already mentioned*, with numbers on their six sides, are procured, they may be of great service. Our cubes should be placed, from time to time, in a different order, or promiscuously; but when

any arithmetical operations are to be performed with them, it is best to preserve the established arrangement.

One cube and one other are called two.

Two what ?

Two cubes.

One glass and one glass are called two glasses. One raisin and one raisin are called two raisins, &c. One cube and one glass are called what ? *Two things*, or two.

. By a process of this sort the meaning of the abstract term *two* may be taught. A child will perceive that the word *two* means the same as the words *one and one* ; and when we say that one and one are called two, unless he is prejudiced by something else that is said to him, he will understand nothing more than that there are two names for the same thing.

“ One, and one, and one, are called “ three,” is the same as saying “ that three “ is the name for one, and one, and one.” “ Two, and one, are three,” is also the same as saying “ that three is the name of *two and “ one.*” Three is also the name of one and two ; the word three has, therefore, three meanings : it means one, and one, and one ;

also two and one ; *also* one and two. He will see that any two of the cubes may be put together, as it were, in one parcel, and that this parcel may be called *two* ; and he will also see that this parcel, when joined to another single cube, will *make* three, and that the sum will be the same, whether the single cube, or the two cubes, be named first.

In a similar manner the combinations which form *four* may be considered. One, and one, and one, and one, are four.

One and three are four.

Two and two are four.

Three and one are four.

All these assertions mean the same thing, and the term *four* is equally applicable to each of them ; when, therefore, we say that two and two are four, the child may be easily led to perceive, and indeed to *see*, that it means the same thing to saying one *two*—and one *two*,—which is the same thing as saying two *two's*, or saying the word *two* two times. Our pupil should be suffered to rest here ; and we should not, at present, attempt to lead him farther towards that compendious method of addition which we

call multiplication; but the foundation is laid by giving him this view of the relation between two and two in forming four.

There is an enumeration in the note* of

* Two is $\frac{1}{1}$
 the —
 name for 2
 —

1
 1 1
 1 2
 — —
 3 3
 — —

1
 1 1
 1 1 1 2
 1 2 3 2
 — — — —
 4 4 4 4
 — — — —

1
 1 1
 1 1 1 1
 1 1 1 1 2 3
 1 2 3 4 2 2
 — — — — — —
 5 5 5 5 5 5
 — — — — — —

the different combinations which compose the rest of the Arabic notation, which con-

1
1 1
1 1 1 1
1 1 1 1 1 2 1 1
1 1 1 1 1 2 2 3 4 2 3
1 2 3 4 5 2 2 2 2 3 3
6 6 6 6 6 6 6 6 6 6 6

1																			
1	1																		
1	1	1					1												
1	1	1	1				1	1	1										
1	1	1	1	1			1	2	1	1			2	1					
1	1	1	1	1	1		2	2	3	4	5		2	3	4				
1	2	3	4	5	6		2	2	2	2	2		3	3	3				
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>		<hr/>	<hr/>	<hr/>	<hr/>	<hr/>		<hr/>	<hr/>	<hr/>				
7	7	7	7	7	7		7	7	7	7	7		7	7	7				

[illegible]

sists of only nine characters. They may be employed as the first sums for teaching addition.

1					
1	2	1		1	
2	2	3	4	2	2
4	4	4	4	5	6
8	8	8	8	8	8

1															
1	1														
1	1	1							1						
1	1	1	1						1	1		1			
1	1	1	1	1					1	1	1	1		1	
1	1	1	1	1	1				1	1	2	1	1	2	1
1	1	1	1	1	1	1			1	2	2	1	2	2	1
1	1	1	1	1	1	1	1		2	2	2	2	2	2	3
1	2	3	4	5	6	7	8		2	2	2	3	3	3	3
9	9	9	9	9	9	9	9		9	9	9	9	9	9	9

						1						
						1	1			1		
3	1	2	1			1	2	1		1	2	1
3	4	4	5	6		2	2	4	5	2	2	2
3	3	3	3	3		4	4	4	4	5	5	6
7	7	7	7	7		7	7	7	7	7	7	7
9	9	9	9	9		9	9	9	9	9	9	9

Before we proceed to the number ten, or to the new series of numeration which succeeds to it, we should make our pupils perfectly masters of the combinations which we have mentioned, both in the direct order in which they are arranged, and in various modes of succession; by these means, not only the addition, but the subtraction of numbers as far as nine, will be perfectly familiar to them.

It has been observed before, that counting by realities, and by signs, should be taught at the same time, so that the ear, the eye, and the mind, should keep pace with one another, and that technical habits should be acquired without injury to the understanding: If a child begins between four and five years of age, he may be allowed half-a-year for this essential preliminary step in arithmetic; four or five minutes' application every day will be sufficient to teach him not only the relations of the first decade in numeration, but also how to write figures with accuracy and expedition.

The next step is by far the most difficult in the science of arithmetic: in treatises upon the subject it is concisely passed over

under the title Numeration ; but it requires no small degree of care to make it intelligible to children, and we therefore recommend, that, besides direct instruction upon the subject, the child should be led by degrees to understand the nature of classification in general. Botany and natural history, though they are not pursued as sciences, are, notwithstanding, the daily occupation and amusement of children, and they supply constant examples of classification. In conversation these may be familiarly pointed out ; a grove, a flock, &c. are constantly before the eyes of our pupil, and he comprehends as well as we do what is meant by two groves, two flocks, &c. The trees that form the grove are each of them individuals ; but let their numbers be what they may when they are considered as a grove, the grove is but one, and may be thought of and spoken of distinctly, without any relation to the number of single trees which it contains. From these, and similar observations, a child may be led to consider *ten* as the name for a *whole*, an *intéger*, a *one*, which may be represented by the figure (1) : this same figure may also stand for a hundred, or

a thousand, as he will readily perceive hereafter. Indeed, the term one hundred will become familiar to him in conversation long before he comprehends that the word *ten* is used as an aggregate term, like a dozen, or a thousand. We do not use the word *ten* as the French do *une dizaine*; *ten* does not, therefore, present the idea of an integer till we learn arithmetic. This is a defect in our language, which has arisen from the use of duodecimal numeration; the analogies existing between the names of other numbers in progression is broken by the terms eleven and twelve. *Thirteen, fourteen, &c.* are so obviously compounded of three and ten, and four and ten, as to strike the ears of children immediately; and when they advance as far as twenty, they readily perceive that a new series of units begins, and proceeds to thirty; and that thirty, forty, &c. mean three tens, four tens, &c. In pointing out these analogies to children, they become interested and attentive; they show that species of pleasure which arises from the perception of *aptitude*, or of truth. It can scarcely be denied that such a pleasure exists independently of every view

of utility and fame, and when we can once excite this feeling in the minds of our young pupils, at any period of their education we may be certain of success.

As soon as distinct notions have been acquired of the manner in which a collection of ten units becomes a new unit of a higher order, our pupil may be led to observe the utility of this invention by various examples, before he applies it to the rules of arithmetic. Let him count as far as ten with black pebbles,* for instance; let him lay aside a white pebble to represent the collection of ten; he may count another series of ten black pebbles, and lay aside another white one; and so on, till he has collected ten white pebbles, as *each* of the ten white pebbles represents ten black pebbles, he will have counted one hundred; and the ten white pebbles may now be represented by a single red one, which will stand for one hundred. This large number, which it takes up so much time to count, and which could not be comprehended at one view, is represented by a single sign. Here the

* The word calculate is derived from the Latin *calculus*, a pebble.

difference of colour forms the distinction : difference in shape, or size, would answer the same purpose, as in the Roman notation X for ten, L for fifty, C for one hundred, &c. All this is fully within the comprehension of a child of six years old, and will lead him to the value of written figures by the *place* which they hold when compared with one another. Indeed he may be led to invent this arrangement, a circumstance which would encourage him in every part of his education. When once he clearly comprehends that the third place, counting from the right, contains only figures which represent hundreds, &c. he will have conquered one of the greatest difficulties of arithmetic. If a paper ruled with several perpendicular lines, a quarter of an inch asunder, be shown to him, he will see that the spaces or columns between these lines would distinguish the value of figures written in them, without the use of the sign (0), and he will see that (0), or zero, serves only to mark the place or situation of the neighbouring figures.

An idea of decimal arithmetic, but without detail, may now be given to him, as it will not appear extraordinary to *him* that a

unit should represent ten by having its place or column changed ; and nothing more is necessary in decimal arithmetic than to consider that figure which represented, at one time, an integer, or whole, as representing at another time the number of *tenth parts* into which that whole may have been broken.

Our pupil may next be taught what is called numeration, which he cannot fail to understand, and in which he should be frequently exercised. Common addition will be easily understood by a child who distinctly perceives that the perpendicular columns, or places in which figures are written, may distinguish their value under various different denominations, as gallons, furlongs, shillings, &c. We should not tease children with long sums in avoirdupois weight, or load their frail memories with tables of long measure, and dry-measure, and ale-measure in the country, and ale-measure in London ; only let them cast up a few sums in different denominations, with the tables before them, and let the practice of addition be preserved in their minds by short sums every day ; and when they are

between six and seven years old they will be sufficiently masters of the first and most useful rule of arithmetic.

To children who have been trained in this manner, subtraction will be quite easy; care, however, should be taken to give them a clear notion of the mystery of *borrowing* and *paying*, which is inculcated in teaching subtraction.

From 94

Subtract 46

“Six from four I can’t, but six from ten,
“and four remains; and four and four is
“eight.”

And then, “One that I borrowed and
“four are five; five from nine, and four
“remain.”

This is the formula; but is it ever explained? or can it? Certainly not without some alteration. A child sees that six cannot be subtracted (taken) from four; more especially a child who is familiarly acquainted with the component parts of the names six and four: he sees that the sum 46 is less than the sum 94, and he knows that the lesser sum may be subtracted from the greater; but he does not perceive the means of .sepa-

rating them figure by figure. Tell him, that though six cannot be deducted from four, yet it can from fourteen; and that if one of the tens which are contained in the (9) ninety in the uppermost row of the second column be supposed to be taken away, or borrowed, from the ninety, and added to the four, the nine will be reduced to 8 (eighty), and the four will become fourteen. *Our* pupil will comprehend this most readily; he will see that 6, which could not be subtracted from 4 may be subtracted from fourteen, and he will remember that the 9 in the next column is to be considered as only (8). To avoid confusion, he may draw a stroke across the (9) and write 8 over ⁸ it (9) and proceed to the remainder of the operation. This method for beginners is certainly very distinct, and may, for some time, be employed with advantage; and after its rationale has become familiar, we may explain the common method, which depends upon this consideration.

“ When one number is deducted from
 “ another, the remainder will be the same

* This method is recommended in the *Cours de Math. par Camus*, p. 38.

“ whether we add a number to the smaller
“ or take away the same number from the
“ larger.” For instance :

Let the larger number be nine, and the smaller four—the remainder will be the same, whether we add three to the smaller number (4), or take away three from the larger number (9); in both cases the remainder will be two.

Now, in the common method of subtraction, the *one* which is borrowed is taken from the uppermost figure in the adjoining column, and instead of altering that figure to *one* less, we add one to the lowest figure, which, as we have just shown, will have the same effect. The terms, however, that are commonly used in performing this operation, are improper. To say “one that I borrowed and four” (meaning the lowest figure in the adjoining column) implies the idea that what was borrowed is now to be repaid to that lowest figure ; which is not the fact. .

As to multiplication we have little to say. Our pupil should be furnished, in the first instance, with a table containing the addition of the different units, which form the different products of the multiplication-table :

these he should, from time to time, add up as an exercise in addition ; and it should be frequently pointed out to him, that adding these figures so many times over is the same as multiplying them by the number of times that they are added ; as three times 3 means 3 added three times. Here one of the figures represents a quantity, the other does not represent a quantity ; it denotes nothing but the times, or frequency of repetition. Young people, as they advance, are apt to confound these signs, and to imagine, for instance, in the rule of three, &c. that the sums which they multiply together mean quantities ; that 40 yards of linen may be multiplied by three and sixpence, &c. an idea from which the mis-statements, in sums that are intricate, frequently arise.

We have heard that the multiplication-table has been set, like the Chapter of Kings to a cheerful tune. This is a species of technical memory which we have long practised, and which can do no harm to the understanding ; it prevents the mind from no beneficial exertion, and may save much irksome labour. It is certainly to be wished that our pupil should be expert in the mul-

multiplication-table ; if the cubes which we have formerly mentioned be employed for this purpose, the notion of *squaring* figures will be introduced at the same time that the multiplication-table is committed to memory.

In division, what is called the Italian method of arranging the divisor and quotient appears to be preferable to the common one, as it places them in such a manner as to be easily multiplied by each other, and as it agrees with algebraic notation.

The usual method is this :

Divisor

71)83467(1175

Italian method :

Dividend

83467	71	
	<hr style="width: 50%; margin: 0;"/>	
	1175	

The rule of three is commonly taught in a manner merely technical : that it may be learned in this manner, so as to answer the common purposes of life, there can be no doubt ; and nothing is farther from our design than to depreciate any mode of instruction which has been sanctioned by experience : but our purpose is, to point out methods of convey-

ing instruction that shall improve the reasoning faculty, and habituate our pupil to think upon every subject. We wish, therefore, to point out the course which the mind would follow to solve problems relative to proportion without the rule, and to turn our pupil's attention to the circumstances in which the rule assists us.

The calculation of the price of any commodity, or the measure of any quantity, where the first term is one, may be always stated as a sum in the rule of three; but as this statement retards, instead of expediting the operation, it is never practised.

If one yard costs a shilling, how much will three yards cost?

The mind immediately perceives that the price added three times together, or multiplied by three, gives the answer. If a certain number of apples are to be equally distributed amongst a certain number of boys, if the share of one is one apple, the share of ten or twenty is plainly equal to ten or twenty apples. But if we state that the share of three boys is twelve apples, and ask what number will be sufficient for nine boys, the answer is not obvious; it requires

consideration. Ask our pupil what made it so easy to answer the last question, he will readily say, "Because I knew what was the share of one."

Then you could answer this new question if you knew the share of one boy?

Yes.

Cannot you find out what the share of one boy is when the share of three boys is twelve?

Four.

What number of apples then, will be enough, at the same rate, for nine boys?

Nine times four, that is, thirty-six.

In this process he does nothing more than divide the second number by the first, and multiply the quotient by the third; 12 divided by 3 is 4, which multiplied by 9 is 36. And this is, in truth, the foundation of the rule; for though the golden rule facilitates calculation, and contributes admirably to our convenience, it is not absolutely necessary to the solution of questions relating to proportion.

Again, "If the share of three boys is five apples, how many will be sufficient for nine?"

Our pupil will attempt to proceed as in the former question, and will begin by endeavouring to find out the share of one of the three boys; but this is not quite so easy; he will see that each is to have one apple and part of another; but it will cost him some pains to determine exactly how much. When at length he finds that one and two-thirds is the share of one boy, before he can answer the question, he must multiply one and two-thirds by nine, which is an operation *in fractions*, a rule of which he at present knows nothing. But if he begins by multiplying the second by the third, instead of dividing the second previously by the first number, he will avoid the embarrassment occasioned by fractional parts, and will easily solve the question. Three is to five as nine is to fifteen.

$$3 : 5 :: 9 : 15$$

Multiply 5
by 9

it makes 45.

which product 45, divided by 3, gives 15.

Here our pupil perceives, that if a given number, 12, for instance, is to be divided

by one number, and multiplied by another, *it will come to the same thing*, whether he begins by dividing the given number, or by multiplying it.

12 divided by 4 is 3, which

multiplied by 6 is 18 ;

And

12 multiplied by 6 is 72, which

divided by 4 is 18.

We recommend it to preceptors not to fatigue the memories of their young pupils with sums which are difficult only from the number of figures which they require, but rather to give examples *in practice*, where aliquot parts are to be considered, and where their ingenuity may be employed without exhausting their patience. A variety of arithmetical questions occur in common conversation, and from common incidents ; these should be made a subject of inquiry, and our pupils, among others, should try their skill. “ Butler’s Arithmetical Questions ” will supply many entertaining as well as instructive questions.

We should observe, that every explanation upon these subjects should be recurred to from time to time, perhaps every two or

three months ; as there are no circumstances in the business of every day which recall abstract speculations to the minds of children ; and the pupil who understands them to-day may, without any deficiency of memory, forget them entirely in a few weeks. Indeed, the perception of the chain of reasoning, which connects demonstration, is what makes it truly advantageous in education. Whoever has occasion, in the business of life, to make use of the rule of three, may learn it effectually in a month as well as in ten years ; but the habit of reasoning cannot be acquired late in life without *unusual* labour and uncommon fortitude.

CHAPTER XVI.

GEOMETRY.

THERE is certainly no royal road to Geometry, but the way may be rendered easy and pleasant by timely preparations for the journey. Without any previous knowledge of the country, or of its peculiar language, how can we expect that our young traveller should advance with facility or pleasure. We are anxious that our pupil should acquire a taste for accurate reasoning, and we resort to Geometry, as the most perfect, and the purest series of ratiocination which has been invented. Let us then sedulously avoid whatever may disgust him ; let his first steps be easy and successful ; let them be frequently repeated till he can retrace them without a guide.

We have recommended in the chapter upon Toys, that children should, from their earliest years, be accustomed to the shape

of what are commonly called the regular solids ; they should also be accustomed to the figures in mathematical diagrams. To these should be added their respective names, and the whole language of the science should be rendered as familiar as possible.

Mr. Donne, an ingenious mathematician of Bristol, has published a prospectus of an Essay on Mechanical Geometry ; he has executed, and employed with success, models in wood and metal for demonstrating propositions in geometry in a *palpable* manner. We have endeavoured, in vain, to procure a set of these models for our own pupils, but we have no doubt of their utility.*

What has been thus acquired in childhood should not be suffered to escape the memory. Dionysius† had mathematical diagrams described upon the floors of his apartments, and thus recalled their demonstrations to his memory. The slightest addition in knowledge that can be conceived, if it be continued daily, will imperceptibly not only pre-

* Since the first edition of this work was published we have seen Mr. Donne's Models, which are designed with much ingenuity, and executed with great accuracy.

† Plutarch.—Life of Dion.

serve what has been already acquired, but will, in a few years, amount to as large a stock of mathematical knowledge as we could wish. It is not our object to make mathematicians, but to make it easy to our pupil to become a mathematician, if his interest, or his ambition, make it desirable; and, above all, to habituate him to clear reasoning and close attention. And we may here remark, that an early acquaintance with the accuracy of mathematical demonstration does not, within our experience, contract the powers of the imagination. On the contrary, amongst other instances, we recollect that of a young lady, who is now no more, who had an uncommon propensity to mathematical reasoning, though her imagination was remarkably vivid and inventive. The following story was written entirely by her when she was only twelve years old:—

“ It happened towards the middle of June
“ that I rose remarkably early to take a walk
“ through the country, before the sultry
“ beams of the sun had yet heated the at-
“ mosphere; and wandering wherever the
“ windings of the path led me, I arrived at
“ the gate of a magnificent garden: the gar-

“ dener, immediately perceiving me, desired
“ that I should walk in, with which request
“ I readily complied, and surveyed with de-
“ light the variety of shrubs, and flowers,
“ which the garden produced : at length, re-
“ posing myself among the twisted branches
“ of an honeysuckle, within full view of a
“ large and costly bed of tulips, Morpheus
“ closed my eyes, and sent to me from hea-
“ ven the following dream :

“ On the tallest, largest, finest tulip that
“ bloomed in the garden, methought there
“ settled a butterfly of uncommon beauty,
“ between whose downy wings reclined a
“ little fairy. Her form was inexpressibly
“ elegant : sweetness and gaiety, and youth
“ were blended in her countenance, with
“ innocence and unaffected grace, that she
“ seemed as if she were that moment come
“ to life : her flowing robe was tinctured
“ with all the variety of colours that it was
“ possible for nature or art to conceive ; her
“ eyes were of a vivid blue, and her flaxen
“ hair waved in ringlets upon her shoulders.
“ Small though she was, I could distinguish
“ every fold in her garment, nay even every
“ azure vein that wandered beneath her

“ snowy skin. As I was thus contemplat-
“ ing her with attention, she disengaged her-
“ self from the butterfly, whom she managed
“ with a silken rein, leaving it to range about
“ the garden at pleasure ; and perching her-
“ self upon the stamina of the tulip, she
“ began to diversify it with the very finest
“ tinctures that I could have formed any
“ idea of. She placed in her lap a little
“ tablet, covered with a numberless variety
“ of different colours, which she by degrees
“ laid on the surface of the flower with a
“ pencil made of the softest hairs imaginable,
“ wetting it every now and then with the
“ dew-drops that still remained scattered up
“ and down the leaves. Methought as I
“ gazed upon her, that I never in my life
“ beheld a more beautiful picture. And
“ now that her morning work was just com-
“ pleted, she gathered together a handful of
“ farina off a neighbouring flower, and began
“ to sprinkle it over the yet moist tulip, to
“ give it that velvet gloss which is so pecu-
“ liarly beautiful, when I happened to turn
“ my head, and to my great surprise I be-
“ held my youngest daughter running to
“ seize hold of the butterfly, which she was

“ just on the point of catching, when her
“ foot slipped, and she crushed at once by
“ her fall, the flower and the pretty little
“ object of her wishes ; even the fairy had
“ but a narrow escape, by concealing herself
“ under a shell that chanced to be beneath
“ the tulip.

“ The beauty of the scene had now en-
“ tirely vanished, and I saw nothing but the
“ bruised flower and the dying insect. A
“ number of confused ideas now danced
“ before my eyes, and my ears were filled
“ with a variety of discordant sounds. At
“ length a small, shrill voice distinctly arti-
“ culated the following words :—

“ He who now speaks to you”—said the
“ invisible being—“ is the deity of the fairies,
“ and as your curiosity has been excited with
“ respect to the little fairy you have just now
“ seen, it shall be satisfied. Her name is
“ Rivuletta, and she belongs to the most
“ delicate species of fairy that exists, to whom
“ the care is given of the vegetable creation.
“ ’Tis they, who every revolving season en-
“ liven and beautify the scenes of nature with
“ such a variety of tinctures ; and as they
“ are continually employed in giving plea-

“ sure, they are peculiarly happy. What
“ occupations can be more delightful than
“ theirs ?

“ They paint the purple year with varied show,
“ Tip the green gem and bid the blossom blow.
“ They bid the turgid buds receive the breeze,
“ Expand to leaves, and shade the naked trees.
“ When gathering damps the misty night suffuse,
“ They sprinkle all the morn with balmy dews :
“ Bright trembling pearls depend at every spray,
“ And kept from falling, seem to fall away.
“ A glossy freshness hence the rose receives,
“ And blushes sweet through all her silken leaves.”*

“ Yet think not from this partial view that
“ they are exempted from the universal lot
“ of every being ; they have their miseries
“ in common with others. Are there not
“ frosts to nip ? Are there not heats to
“ parch ? Are there not rains to drown, and
“ blights to blast the fairest of their produce ?
“ Nay, have they not more to fear than all
“ these ? Has not their sad experience
“ taught them that

“ Full many a flower is born to blush unseen,
“ And waste its sweetness on the desert air.

* Parnell's Vigil of Venus.

“ And consider what those must feel who
“ are doomed to toil upon such neglected
“ beauties. Have they not likewise learned
“ what to expect from man, who robs them
“ of their choicest sweets ere they are arrived
“ at full perfection ?

“ To all these various evils the little fairies
“ are continually subject, and fortunate indeed is she who escapes them all. And
“ now look yonder (said the invisible being);
“ observe that tulip, and that insect, which
“ formerly constituted the whole happiness
“ of the unfortunate Rivuletta : she is now
“ by the folly of a child, deprived for ever
“ of it, and rendered miserable for the rest
“ of her life. How often have I viewed
“ her proudly mounted on her gilded butterfly ascend to the higher regions of the
“ sylphs, with them

“ To sport and flutter in the fields of air,

“ and then descend with equal joy upon her
“ favourite flower, whose loss by one of the
“ laws of her society dooms her to perpetual
“ slavery.”

“ Methought that the deity was just going

“ to explain the reason of this, when my
“ attention was unexpectedly diverted by
“ the appearance of the fairy, who was slowly
“ riding on a sable moth. Her robes, which
“ but a little while before had looked so gay,
“ were now coloured of the darkest green,
“ her countenance was pale and wan, and I
“ discovered that she really had become a
“ slave since I had seen her; for as she
“ drew nearer to the remains of her butter-
“ fly, and stretched out her hand to reach
“ them, I heard the sound of a heavy chain
“ upon her little feeble arm.

“ I here gave a deep sigh, and with the
“ violence of my emotion I awoke, and
“ hearing the buzzing of the bees, I suddenly
“ recollected myself. I arose from my seat
“ to pursue my walk homewards, painting
“ upon every butterfly that I saw the image
“ of Rivuletta.

“ As I was thus recalling to my memory
“ the delightful vision which I had just be-
“ held, I found that what at first so strongly
“ caught my senses, now began to touch my
“ heart, and that even in the wildest flights
“ of the imagination reason can trace a
“ moral. The familiar shape and humble

“ species of the insect had made me look
“ with indifference on its sufferings, though
“ it expired in agony at my feet ; whilst the
“ fair form, graceful motion, and elegant
“ attire of the fairy had given importance to
“ her imaginary distress, and had wrung
“ my heart with the tenderest compassion.”

We have accustomed our pupils to form in their minds the conception of figures generated from points and lines, and surfaces supposed to move in different directions, and with different velocities. It may be thought that this would be a difficult occupation for young minds ; but, upon trial, it will be found not only easy to them, but entertaining. In their subsequent studies it will be of material advantage ; it will facilitate their progress not only in pure mathematics, but in mechanics and astronomy, and in every operation of the mind which requires exact reflection.

To demand steady thought from a person who has not been trained to it, is one of the most unprofitable and dangerous requisitions that can be made in education.

“ Full in the midst of Euclid dip at once,
“ And petrify a genius to a dunce.”

In the usual commencement of mathematical studies the learner is required to admit that a point, of which he sees the prototype, a dot before him, has neither length breadth, nor thickness. This, surely, is a degree of faith not absolutely necessary for the neophyte in science. It is an absurdity which has, with much success, been attacked in "Observations on the Nature of Demonstrative Evidence," by Doctor Beddoes. ;

We agree with the doctor as to the impropriety of calling a visible dot a point without dimensions. But, notwithstanding the high respect which that author commands by a steady pursuit of truth on all subjects of which he treats, we cannot avoid protesting against part of the doctrine which he has endeavoured to inculcate. That the names point, radius, &c. are derived from sensible objects need not be disputed ; but surely the word *centre* can be understood by the human mind without the presence of any visible or tangible substance.

Where two lines meet, their junction cannot have dimensions ; the junction of two radii of a circle is the centre, and the name centre may be used for ever without any

relation to a tangible or visible point. The word boundary, in like manner, means the extreme limit which we call a line; but to assert that it has thickness, would, from the very terms which are used to describe it, be a direct contradiction. Bishop Berkeley, Mr. Walton, Philathetes Cantabrigiensis, and Mr. Benjamin Robins, published several pamphlets upon this subject about half a century ago. No man had a more penetrating mind than Berkeley; but we apprehend that Mr. Robins closed the dispute against him. This is not meant as an appeal to authority, but to apprise such of our readers as wish to consider the argument, where they may meet an accurate investigation of the subject. It is sufficient for our purpose to warn preceptors, not to insist upon their pupil's acquiescence in the dogma, that a point represented by a dot, is without dimensions, and at the same time to profess that we understand distinctly what is meant by mathematicians when they speak of length without breadth, and of a superficies without depth; expressions which, to our minds, convey a meaning as distinct as the name of any visible or tangible substance in nature,

whose varieties from shade, distance, colour, smoothness, heat, &c. are infinite, and not to be comprehended in any definition.

In fact this is a dispute merely about words; and as the extension of the art of printing puts it in the power of every man to propose and to defend his opinions at length, and at leisure, the best friends may support different sides of a speculative question with mutual regard, and the most violent enemies with civility and decorum. Can we believe that Tycho Brahe lost half his nose in a dispute with a Danish nobleman about a mathematical demonstration?

CHAPTER XVII.

ON MECHANICS.

PARENTS are anxious that children should be conversant with Mechanics, and with what are called the mechanic powers. Certainly no species of knowledge is better suited to the taste and capacity of youth, and yet it seldom forms a part of early instruction. Every body talks of the lever, the wedge, and the pulley, but when they wish to employ these organs, they frequently perceive that the notions which they have of their respective uses are unsatisfactory and indistinct; and many endeavour, at a late period of life, to acquire a scientific and exact knowledge of the effects that are produced by implements which are in every body's hands, or that are absolutely necessary in the daily occupations of mankind.

An itinerant lecturer seldom fails of having a numerous and attentive auditory, and if he does not communicate much of that knowledge which he endeavours to explain, it is not to be attributed either to his want of skill, or to the insufficiency of his apparatus, but to the novelty of the terms which he is obliged to use. Ignorance of the language in which any science is taught, is an insuperable bar to its being suddenly acquired ; besides a precise knowledge of the meaning of terms, we must have an instantaneous idea excited in our minds whenever they are repeated ; and, as this can be acquired only by practice, it is impossible that philosophical lectures can be of much service to those who are not familiarly acquainted with the technical language in which they are delivered ; and yet there is scarcely any subject of human inquiry more obvious to the understanding than the laws of mechanics. Only a small portion of geometry is necessary to the learner, if he even wishes to become master of the more difficult problems which are usually contained in a course of lectures ; and most of what is practically useful may be acquired

by any person who is expert in common arithmetic.

But we cannot proceed a single step without deviating from common language ; if the theory of the balance, or the lever, is to be explained, we immediately speak of *space* and *time*. To persons not versed in literature it is probable, that these terms appear more simple and intelligible than they do to a man who has read Locke, and other metaphysical writers. The term *space*, to the bulk of mankind, conveys the idea of an interval ; they consider the word *time* as representing a definite number of years, days, or minutes ; but the metaphysician, when he hears the words *space* and *time*, immediately takes the alarm, and recurs to the abstract notions which are associated with these terms ; he perceives difficulties unknown to the unlearned, and feels a confusion of ideas which distracts his attention. The lecturer proceeds with confidence, never supposing that his audience can be puzzled by such common words. He means by *space* the distance from the place whence a body begins to move to the place where its motion ceases ; and by *time*

he means the number of seconds, or of any determinate divisions of *civil* time which elapse from the commencement of any motion to its end; or, in other words, the duration of any given motion. After this has been frequently repeated, any intelligent person perceives the sense in which these terms are used by the tenor of the discourse; but in the interim the greatest part of what he has heard cannot have been understood, and the premises upon which every subsequent demonstration is founded are unknown to him. If this be true when it is affirmed of two terms only, what must be the situation of those to whom eight or ten unknown technical expressions occur at the commencement of a lecture? A complete knowledge, such a knowledge as is not only full, but familiar, of all the common terms made use of in theoretic and practical mechanics, is, therefore, absolutely necessary before any person can attend public lectures in natural philosophy with advantage.

What has been said of public lectures may, with equal propriety, be applied to private instruction; and, it is probable, that

inattention to this circumstance is the reason why so few people have distinct notions of natural philosophy. Learning by rote, or even reading repeatedly, definitions of the technical terms of any science, must undoubtedly facilitate its acquirement; but conversation with the habit of explaining the meaning of words, and the structure of common domestic implements to children, is the sure and effectual method of preparing the mind for the acquirement of science.

The ancients, in learning this species of knowledge, had an advantage of which we are deprived: many of their terms of science were the common names of familiar objects. How few do we meet who have a distinct notion of the words radius, angle, or valve? A Roman peasant knew what a radius or a valve meant, in their original signification, as well as a modern professor; he knew that a valve was a door, and a radius a spoke of a wheel; but an English child finds it as difficult to remember the meaning of the word angle, as the word parabola. An angle is usually confounded, by those who are ignorant of geometry and mechanics, with the

word triangle: and the long reasoning of many a laborious instructor has been confounded by this popular mistake. When a glass pump is shown to an admiring spectator, he is desired to watch the motion of the valves: he looks "above, about, and "underneath;" but, ignorant of the word *valve*, he looks in vain. Had he been desired to look at the motion of the little *doors* that opened and shut, as the handle of the pump was moved up and down, he would have followed the lecturer with ease, and would have understood all his subsequent reasoning.

If a child attempts to push any thing heavier than himself, his feet slide away from it, and the object can be moved only at intervals, and by sudden starts; but if he be desired to prop his feet against the wall, he finds it easy to push what before eluded his little strength. Here the use of a fulcrum, or fixed point, by means of which bodies may be moved, is distinctly understood. If two boys lay a board across a narrow block of wood, or stone, and balance each other at the opposite ends of it, they acquire another idea of a centre of motion. If a poker is

rested against a bar of a grate, and employed to lift up the coals, the same notion of a centre is recalled to their minds. If a boy, sitting upon a plank, a sofa, or form, be lifted up by another boy applying his strength at one end of the seat, whilst the other end of the seat rests on the ground, it will be readily perceived by them that the point of rest, or centre of motion, or fulcrum, is the ground, and that the fulcrum is not, as in the first instance, between the force that lifts, and the thing that is lifted; the fulcrum is at one end, the force which is exerted acts at the other end, and the weight is in the middle.

In trying these simple experiments, the terms *fulcrum*, *centre of motion*, &c. should be constantly employed; and in a very short time they would be as familiar to a boy of eight years old as to any philosopher. If for some years the same words frequently recur to him in the same sense, is it to be supposed that a lecture upon the balance and the lever would be as unintelligible to him as to persons of good abilities, who at a more advanced age hear these terms from the mouth of a lecturer? A boy in such circumstances would appear as if he had a genius for me-

chanics, when, perhaps, he might have less taste for the science, and less capacity than the generality of the audience. Trifling as it may at first appear, it will not be found a trifling advantage, in the progress of education, to attend to this circumstance. A distinct knowledge of a few terms assists a learner in his first attempts; finding these successful, he advances with confidence, and acquires new ideas without difficulty or disgust. Rousseau, with his usual eloquence, has inculcated the necessity of annexing ideas to words; he declaims against the splendid ignorance of men who speak by rote, and who are rich in words amidst the most deplorable poverty of ideas. To store the memory of his pupil with images of things, he is willing to neglect, and leave to hazard, his acquirement of language. It requires no elaborate argument to prove, that a boy, whose mind was stored with accurate images of external objects, of experimental knowledge, and who had acquired habitual dexterity, but who was unacquainted with the usual signs by which ideas are expressed, would be incapable of accurate reasoning, or would, at best, reason only upon particulars.

Without general terms he could not abstract ; he could not, till his vocabulary was enlarged, and familiar to him, reason upon general topics, or draw conclusions from general principles : in short, he would be in the situation of those who, in the solution of difficult and complicated questions relative to quantity, are obliged to employ tedious and perplexed calculations, instead of the clear and comprehensive methods that unfold themselves by the use of signs in algebra.

It is not necessary in teaching children the technical language of any art or science, that we should pursue the same order that is requisite in teaching the science itself. Order is required in reasoning, because all reasoning is employed in deducing propositions from one another in a regular series ; but where terms are employed merely as names, this order may be dispensed with. It is, however, of great consequence to seize the proper time for introducing a new term ; a moment when attention is awake, and when accident has produced some particular interest in the object. In every family opportunities of this sort occur without any preparation, and such opportunities are far

preferable to a formal lecture and a splendid apparatus for the first lessons in natural philosophy and chemistry. If the pump belonging to the house is out of order, and the pump-maker is set to work, an excellent opportunity presents itself for variety of instruction. The centre-pin of the handle is taken out, and a long rod is drawn up by degrees, at the end of which a round piece of wood is seen partly covered with leather. Your pupil immediately asks the name of it, and the pump-maker prevents your answer by informing little master that it is called a *sucker*. You show it to the child, he handles it, feels whether the leather is hard or soft, and at length discovers, that there is a hole through it which is covered with a little flap or door. This, he learns from the workmen, is called a *clack*. The child should be permitted to plunge *the piston* (by which name it should now be called) into a tub of water: in drawing it backwards and forwards he will perceive that the *clack*, or *valve*, opens and shuts as the piston is drawn backwards and forwards. It will be better not to inform the child how this mechanism is employed in the pump. If the names

sucker and piston, clack and valve, are fixed in his memory, it will be sufficient for his first lesson. At another opportunity he should be present when the fixed or lower valve of the pump is drawn up; he will examine it, and find that it is similar to the valve of the piston; if he sees it put down into the pump, and sees the piston put into its place, and set to work, the names that he has learned will be fixed more deeply in his mind, and he will have some general notion of the whole apparatus. From time to time these names should be recalled to his memory on suitable occasions, but he should not be asked to repeat them by rote. What has been said is not intended as a lesson for a child in mechanics, but as a sketch of a method of teaching which has been employed with success.

Whatever repairs are carried on in a house, children should be permitted to see; whilst every body about them seems interested, they become attentive from sympathy; and whenever action accompanies instruction, it is sure to make an impression. If a lock is out of order, when it is taken off show it to your pupil; point out some of its principal

parts, and name them ; then put it into the hands of the child, and let him manage it as he pleases. Locks are full of oil, and black with dust ; but if children have been taught habits of neatness, they may be clock-makers and white-smiths, without spoiling their clothes, or the furniture of a house. Upon every occasion of this sort technical terms should be made familiar ; they are of great use in the every-day business of life, and are peculiarly serviceable in giving orders to workmen, who, when they are spoken to in a language that they are used to, comprehend what is said to them, and work with alacrity.

An early use of a rule and pencil, and easy access to prints of machines, of architecture, and of the implements of trades, are of obvious utility in this part of education. The machines published by the Society of Arts in London ; the prints in Desaguliers, Emerson, *Le Spectacle de la Nature*, *Machines approuvées par l'Academie*, Chambers's Dictionary, Berthoud *surl'Horlogerie*, *Dictionnaire des Arts et des Métiers*, may, in succession, be put into the hands of children. The most simple should be first selected ; and the pupils should be accustomed to at-

tend minutely to one print before another is given to them. A proper person should carefully point out and explain to them the first prints that they examine; they may afterwards be left to themselves.

To understand prints of machines, a previous knowledge of what is meant by an elevation, a profile, a section, a perspective view, and a (*vue d'oiseau*) bird's eye view, is necessary. To obtain distinct ideas of sections, a few models of common furniture, as chests of drawers, bellows, grate, &c. may be provided, and may be cut asunder, in different directions. Children easily comprehend this part of drawing, and its uses, which may be pointed out in books of architecture; its application to the common business of life is so various and immediate, as to fix it for ever in the memory; besides, the habit of abstraction, which is acquired by drawing the sections of complicated architecture, or machinery, is highly advantageous to the mind. The parts which we wish to express in the section are unseen in the elevation or profile of the figure, and are suggested by the connexion between the end proposed in the construc-

tion of the building, machine, &c. and the means which are adapted to effect it.

A knowledge of perspective is to be acquired by an operation of the mind directly opposite to what is necessary in delineating the sections of bodies ; the mind must here be intent only upon the objects that are delineated upon the retina ; it must forget or suspend the knowledge which it has acquired from experience, and must see with the eye of childhood no farther than the surface. Every person who is accustomed to drawing in perspective, sees external nature, when he pleases, merely as a picture ; this habit contributes much to form a taste for the fine arts ; it may, however, be carried to excess. There are improvers who prefer the most dreary ruin to an elegant and convenient mansion, and who prefer a blasted stump to the glorious foliage of the oak.

Perspective is not, however, recommended merely as a mean of improving the taste, but as it is useful in facilitating the knowledge of mechanics. When once children are familiarly acquainted with perspective, and with the representations of machines by elevations, sections, &c. prints will supply

them with an extensive variety of information ; and when they see real machines, their structure and uses will be easily comprehended. The noise, the seeming confusion and the size of several machines, make it difficult to comprehend and combine their various parts, without much time and repeated examination ; the reduced size of prints lays the whole at once before the eye, and tends to facilitate not only comprehension, but contrivance. Whoever can delineate progressively as he invents, saves much labour, much time, and the hazard of confusion.

Various contrivances have been employed to facilitate drawing in perspective, as may be seen in " Cabinet de Servier, Memoires " of the French Academy, Philosophical " Transactions, and lately in the Repertory " of Arts." One invented by the author, was described in the first editions of this book, but he has omitted it in this edition, as it takes up nearly a whole plate, and as it may be found in Nicholson's Journal.

Besides the common terms of art, the technical terms of science should, by degrees, be rendered familiar to our pupils. Amongst

these the words Space and Time occur, as we have observed, the soonest, and are of the greatest importance. Without exact definitions, or abstract reasonings, a general notion of the use of these terms may be inculcated by employing them frequently in conversation, and by applying them to things and circumstances which occur without preparation, and about which children are interested, or occupied. "There is a great space left between the words in that printing." The child understands that space in this sentence means *white paper* between black letters. "You should leave a greater space between the flowers which you are planting,"—he knows that you mean more *ground*. "There is a great space between that boat and that ship,"—space of *water*. "I hope the hawk will not be able to catch that pigeon; there is a great space between them,"—space of *air*. "The men who are pulling that sack of corn into the granary have raised it through half the space between the door and the ground." A child cannot be at any loss for the meaning of the word space in these or any other practical examples which may occur; but

he should also be used to the word *space* as a technical expression, and then he will not be confused or stopped by a new term when employed in mechanic.

The word *time* may be used in the same manner upon numberless occasions to express the duration of any movement which is performed by the force of men, or horses, wind, water, or any mechanical power.

“ Did the horses in the mill we saw yesterday go as fast as the horses which are drawing the chaise?” “ No, not so fast as the horses go at present on level ground ; but they went as fast as the chaise horses do when they go up hill, or as fast as horses that draw a waggon.”

“ How many times do the sails of that wind-mill go round in a minute ? Let us count ; I will look at my watch ; do you count how often the sails go round ; wait till that broken arm is uppermost, and when you say *now*, I will begin to count the *time* ; when a minute has passed I will tell you.”

After a few trials this experiment will become easy to a child of eight or nine years old ; he may sometimes attend to the

watch, and at other times count the turns of the sails: he may easily be made to apply this to a horse-mill, or to a water-mill, a corn-fan, or any machine that has a rotatory motion; he will be entertained with his new employment; he will compare the *velocities* of different machines; the meaning of this word will be easily added to his vocabulary. “Does that part of the arms
“ of the wind-mill which is near the *axle-*
“ *tree*, or *centre* (I mean that part which
“ has no cloth or sail upon it), go as fast as
“ the ends of the arms that are the farthest
“ from the centre?”

“ No, not nearly so fast.”

“ But that part goes as often round in a
“ minute as the rest of the sail.”

“ Yes, but it does not go as fast.”

“ How so?”

“ It does not go so *far* round.”

“ No, it does not. The extremities of
“ the sails *go through more space in the*
“ *same time* than the parts near the centre.”

By conversations like these the technical meaning of the word *velocity* may be made quite familiar to a child much younger than what has been mentioned; he may not only

comprehend that velocity means time and space considered together, but if he is sufficiently advanced in arithmetic he may be readily taught how to express and compare in numbers *velocities* composed of certain portions of time and space. He will not inquire about the abstract meaning of the word *space*; he has seen space measured on paper, on timber, on water, in the air; and he perceives distinctly that it is a term equally applicable to all distances that can exist between objects of any sort, or that he can see, feel, or imagine.

Momentum, a less common word, the meaning of which is not quite so easy to convey to a child, may, by degrees, be explained to him: at every instant he feels the effect of momentum in his own motions, and in the motions of every thing that strikes against him: his feelings and experience require only proper terms to become the subject of his conversation. The proper time to instruct him is when he begins to inquire. For instance, a boy of ten years old, who had acquired the meaning of some other terms in science, this morning asked the meaning of the word momentum; he was

desired to explain what he thought it meant.

He answered, "Force."

"What do you mean by force?"

"Effort."

"Of what?"

"Of gravity."

"Do you mean that force by which a body is drawn down to the earth?"

"No."

"Would a feather, if it were moving with the greatest conceivable swiftness or velocity, throw down a castle?"

"No."*

"Would a mountain torn up by the roots, as fabled in Milton, if it moved with the least conceivable velocity, throw down a castle?"

"Yes, I think it would."

The difference between an uniform, and an uniformly accelerated motion, the measure of the velocity of falling bodies, the composition of motions communicated to

* When this question was some time afterwards repeated to S——, he observed, that the feather would throw down the castle if its swiftness were so great as to make up for its want of weight.

the same body in different directions at the same time, and the cause of the curvilinear track of projectiles, seem, at first, intricate subjects, and above the capacity of boys of ten or twelve years old; but by short and well-timed lessons they may be explained without confounding or fatiguing their attention. We tried another experiment whilst this chapter was writing, to determine whether we had asserted too much upon this subject. After a conversation between two boys upon the descent of bodies towards the earth, and upon the measure of the increasing velocity with which they fall, they were desired with a view to ascertain whether they understood what was said, to invent a machine which should show the difference between an uniform and an accelerated velocity, and in particular to show, by ocular demonstration, “that if one body moves in
“a given time through a given space, with
“an uniform motion, and if another body
“moves through the same space in the same
“time with an uniformly accelerated motion, the uniform motion of the one will
“be equal to half of the greatest velocity of
“the other.” The eldest boy, H— —, thir-

teen years old, invented and executed the following machine for this pupose.

Plate 1, Fig. 3. b is a bracket 9 inches by 5, consisting of a back and two sides of hard wood: two inches from the back two slits are made in the sides of the bracket half an inch deep, and an eighth of an inch wide, to receive the two wire pivots of a roller; which roller is composed of a cylinder, three inches long and half an inch diameter; and of a cone three inches long and one inch diameter in its largest part or base. The cylinder and cone are not separate, but are in one piece; a string is fastened to the cone at its base a, with a bullet or any other small weight at the other end of it; and another string and weight are fastened to the cylinder at (c); the pivot p of wire is bent into the form of a handle; if the handle is turned either way, the strings will be respectively wound up upon the cone and cylinder; their lengths should now be adjusted, so that when the string on the cone is wound up as far as the cone will permit, the two weights may be at an equal distance from the bottom of the bracket, which bottom we suppose to be parallel with

the pivots: the bracket should now be fastened against the wall, at such a height as to let the weights lightly touch the floor when the strings are unwound: silk or *bobbin* is a proper kind of string for this purpose, as it is woven or plaited, and therefore is not liable to twist. When the strings are wound up to their greatest heights, if the handle be turned in the contrary direction with an equable velocity, the weights will begin to fall at the same moment; but the weight (1) will descend at first but slowly, and will pass through but small space compared with the weight (2). As they descend farther, (No. 2) still continues to get before (No. 1); but after some time, (No. 1) begins to overtake (No. 2), and at last they come to the ground together. If this machine is required to show exactly the space that a falling body would describe in given times, the cone and cylinder must have grooves cut spirally upon their circumference to direct the string with precision. To describe these spiral lines became a new subject of inquiry. The young mechanics were again eager to exert their powers of invention; the eldest invented a machine

upon the same principle as that which is used by the best workmen for cutting clock fusees; as described in Berthoud. The youngest invented the following engine, V. Plate 1, Fig. 4.

The roller or cone (or both together), which it is required to cut spirally, must be furnished with a handle, and a toothed wheel *w*, which turns a smaller wheel on pinion *w*. This pinion carries with it a screw *s*, which draws forward the puppet *p*, in which the graver or chisel *G* slides *without shake*. This graver has a point or edge shaped properly to form the spiral groove, with a shoulder to regulate the depth of the groove. The iron rod *r*, which is firmly fastened in the puppet, slides through mortices at *mm*, and guides the puppet in a straight line: the puppet by these means would move more truly than if the rod were fixed, and the puppet made to slip upon it.

The rest of the machine is intelligible from the drawing.

A simple method of showing the nature of compound forces was thought of at the same time. An ivory ball was placed at the

corner of a board sixteen inches broad, and two feet long ; two other similar balls were let to fall down inclined troughs against the first ball in different directions, but at the same time. One fell in a direction parallel to the length of the board ; the other ball fell in a direction parallel to its breadth. By raising the troughs separately, such a force was communicated to each of the falling balls as was found by trial sufficient to drive the ball that was at rest to the opposite side of the board. When both balls were let fall together, they drove the ball which they struck, diagonally, so as to reach the opposite corner.

If the same board were placed as an inclined plane, at an angle of five or six degrees, a ball placed at one of its uppermost corners would fall with an accelerated motion in a direct line ; but if another ball were made (by descending through an inclined trough) to strike the first ball at right angles to the line of its former descent at the moment when it began to descend, this ball would not, as in the former experiment, move diagonally, but would describe a curve,

The reason why it describes a curve, and why that curve is not circular, was easily understood.

Children who are thus induced to invent machines or apparatus for explaining and demonstrating the laws of mechanism, not only fix indelibly those laws in their own minds, but enlarge their powers of invention, and preserve a certain originality of thought, which leads to new discoveries. We therefore strongly recommend it to teachers, to use as few precepts as possible in the rudiments of science, and to encourage their pupils to use their own understandings as they advance. In acquiring a knowledge of mechanism, a general view of the powers and uses of engines is all that need be taught where more is necessary, such a foundation, with the assistance of good books, and the examination of good machinery, will perfect the knowledge of theory and facilitate practice.

At first we should not encumber our pupils with accurate demonstration. The application of mathematics to mechanics is undoubtedly of the highest use, and has opened a source of ingenious and important inquiry.

Archimedes, the greatest name amongst mechanic philosophers, scorned the mere practical application of his sublime discoveries, and at the moment when the most stupendous effects were producing by his engines, he was so deeply absorbed in abstract speculation as to be insensible to the fear of death. We do not entirely approve the sublime abstraction of Archimedes, nor do we undervalue either the application of strict demonstration to problems in mechanics, or the exhibition of the most accurate machinery in philosophical lectures ; but we wish to point out a method of giving a general notion of the mechanical organs to our pupils, which shall be immediately obvious to their comprehension, and which may serve as a sure foundation for future improvement. We are told, by a vulgar proverb, that though we believe what we see, we have yet a higher belief in what we *feel*. This adage is particularly applicable to mechanics. When a person perceives the effect of his own bodily exertions with different engines, and when he can compare in a rough manner their relative advantages, he is not disposed to reject their assistance, or to expect more

than is reasonable from their application. The young theorist in mechanics thinks he can produce a perpetual motion ! When he has been accustomed to refer to the plain dictates of common sense and experience, on this, as well as on every other subject, he will not easily be led astray by visionary theories.

To bring the sense of feeling to our assistance in teaching the uses of the mechanic powers, the following apparatus was constructed, to which we have given the name Panorganon.

It is composed of two principal parts ; a frame to contain the moving machinery ; and a *capstan* or *windlass*, which is erected on a *sill* or plank, that is sunk a few inches into the ground ; the frame is by this means, and by braces or props, rendered steady. The cross rail or *transom*, is strengthened by braces and a king-post to make it lighter and cheaper. The *capstan* consists of an upright shaft, upon which are fixed two *drums* (about either of which *drums* a rope may be wound up) and two levers or arms, by which the *capstan* may be turned round. There is also a screw of iron fixed round the

lower part of the shaft, to show the properties of the screw as a mechanic power. The rope which goes round the *drum* passes over one of the pulleys near the top of the frame, and under another pulley near the bottom of the frame. As two *drums* of different sizes are employed, it is necessary to have an upright roller to conduct the rope in a proper direction to the pulleys, when either of the *drums* is used. Near the frame, and in the direction in which the rope runs, is laid a platform or road of deal boards, one board in breadth, and twenty or thirty feet long, upon which a small sledge loaded with different weights may be drawn. Plate 2. Fig. 1.

F. F. The frame.

b. b. Braces to keep the frame steady.

a. a. a. Angular braces and a king-post to strengthen the transom.

S. A round, taper shaft, strengthened above and below the mortices, through which the levers pass, with iron hoops.

L. L. Two arms or levers by which the shaft, &c. are to be moved round.

D. D. The drums, which are of different circumferences.

R. The roller to conduct the rope.

P. The pulley, round which the rope passes to the large drum.

P 2. Another pulley to *answer* to the smaller drum.

P 3. A pulley through which the rope passes when experiments are tried with levers, &c.

P 4. Another pulley, through which the rope passes when the sledge is used.

Ro. The road of deal boards for the sledge to move on.

Sl. The sledge, with pieces of hard wood attached to it, to guide it on the road.

Uses of the Panorganon.

As this machine is to be moved by the force of men or children, and as their force varies not only with the strength and weight of each individual, but also according to the different manner in which that strength or weight is applied, it is, in the first place, requisite to establish one determinate mode of applying human force to the machine, and also a method of determining the relative force of each individual whose strength is applied to it.

To estimate the Force with which a Person can draw horizontally by a Rope over his Shoulder.

EXPERIMENT I.

Hang a common long scale-beam (without scales or chains) from the top or *transom* of the frame, so as that one end of it may come within an inch of one side or post of the machine. Tie a rope to the hook of the scale-beam, where the chains of the scale are usually hung, and pass it through the pulley P 3, which is about four feet from the ground; let the person pull this rope from 1 towards 2, turning his back to the machine, and pulling the rope over his shoulder, Pl. 2. Fig. 6. As the pulley may be either too high or too low to permit the rope to be horizontal, the person who pulls it should be placed ten or fifteen feet from the machine, which will lessen the angular direction of the cord, and the inaccuracy of the experiment. Hang weights to the other end of the scale-beam, till the person who pulls can but just

walk forward, pulling fairly without propping his feet against any thing. This weight will estimate the force with which he can draw horizontally by a rope over his shoulder.

Were it thought necessary to make these experiments perfectly accurate, a segment of a pulley, the radius of which is half the length of the scale-beam, should be attached to the end of the beam, upon which the cord may apply itself, and the pulley (P 3.) should be raised or lowered, to bring the rope horizontally from the man's shoulder, when in the attitude of drawing.

Let a child who tries this, walk on the board with dry shoes ; let him afterwards chalk his shoes, and afterwards try it with his shoes soaped ; he will find that he can pull with different degrees of force in these different circumstances ; but when he tries the following experiments, let his shoes be always dry, that his force may be always the same.

*To show the Power of the Three different
Sorts of Levers.*

EXPERIMENT II.

The lever L, Fig. 2. Plate 2. is passed through a socket, Plate 2. Fig. 3. in which it can be shifted from one of its ends towards the other ; so that it may be fastened at any place by the screw of the socket. This socket has two gudgeons, upon which it and the lever which it contains can turn. This socket and its gudgeons can be lifted out of the holes in which it plays, between the rails R R, Plate 2. Fig. 2. and may be put into other holes at R R, Fig. 5.

Hook the cord that comes over the boy's shoulder to the end (1) of the lever L. Loop another rope to the other end of this lever, and let the boy pull as before. Perhaps it should be pointed out, that the boy must walk in a direction contrary to that in which he walked before ; viz. from 1 towards 3. Fig. 1. The height to which the weight ascends, and the distance to which the boy advances, should be carefully marked and

measured ; and it will be found, that he can raise the weight to the same height, advancing through the same space, as in the former experiment. In this case, as both ends of the lever moved through equal spaces, the lever only changed the direction of the motion, and added no mathematical power to the direct strength of the boy.

EXPERIMENT III.

Shift the lever to the extremity in the *socket* ; the middle of the lever will be now opposite to the pulley, Pl. 2. Fig. 4 ; hook to it the rope that goes through the pulley P 3, and fasten to the other end of the lever the rope by which the boy is to pull. This will be *a lever of the second kind*, as it is called in books of mechanics ; in using which, *the resistance is placed between the centre of motion or fulcrum, and the moving power*. He will now raise double the weight that he did in Experiment II, and he will advance through double the space.

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EXPERIMENT IV.

Shift the lever, and the socket which forms the axis (without shifting the lever from the place in which it was in the socket in the last experiment), to the holes that are prepared for it at R R, Plate 2. Fig. 5. The free end of the lever E will now be opposite to the rope, and to the pulley (over which the rope comes from the scale-beam). Hook this rope to it, and hook the rope by which the boy pulls to the middle of the lever. The effect will now be different from what it was in the two last experiments ; the boy will advance only half as far, and will raise only half as much weight as before. This is called *a lever of the third sort*. The first and second kinds of levers are used in quarrying ; and the operations of many tools may be referred to them. The third kind of lever is employed but seldom, but its properties may be observed with advantage whilst a long ladder is raised, as the man who raises it is obliged to exert an increasing force till the ladder is nearly perpendicular. When this lever is used, it is obvious, from

what has been said, that the power must always pass through less space than the thing which is to be moved ; it can never, therefore, be of service in *gaining* power. But the object of some machines is, to increase velocity, instead of obtaining power, as in a sledge-hammer moved by mill-work, (V. the plates in Emerson's *Mechanics*, No. 236).

The experiments upon levers may be varied at pleasure, increasing or diminishing the mechanical advantage, so as to balance the power and the resistance, to accustom the learners to calculate the relation between the power and the effect in different circumstances ; always pointing out, that whatever excess there is in the power,* or in the resistance, is always compensated by the difference of space through which the inferior passes.

The experiments which we have mentioned are sufficiently satisfactory to a pupil, as to the immediate relation between the

* The word *power* is here used in a popular sense, to denote the strength or efficacy that is employed to produce an effect by means of any engine.

power and the resistance ; but the different spaces through which the power and the resistance move when one exceeds the other, cannot be obvious, without they pass through much larger spaces than levers will permit.

To show the different Space through which the Power and Resistance move in different Circumstances.

EXPERIMENT V.

Place the sledge on the farthest end of the wooden road, Plate 2. Fig. 1. ; fasten a rope to the sledge, and conduct it through the lowest pulley P 4, and through the pulley P 3, so as that the boy may be enabled to draw it by the rope passed over his shoulder. The sledge must now be loaded, till the boy can but just advance with short steps steadily upon the wooden road ; this must be done with care, as there will be but just room for him beside the rope. He will meet the sledge exactly on the middle of the road, from which he must step aside to pass the sledge. Let the time

of this experiment be noted. It is obvious that the boy and the sledge move with equal velocity; there is therefore no mechanical advantage obtained by the pulleys. The weight that he can draw will be about half a hundred, if he weigh about 9 stone; but the exact force with which the boy draws is to be known by Experiment I.

The Wheel and Axle.

This organ is usually called in mechanics, *the axis in peritrochio*. A hard name, which might well be spared, as the word windlass, or capstan, would convey a more distinct idea to our pupils.

EXPERIMENT VI.

To the largest drum, Plate 2, Fig. 1, fasten a cord, and pass it through the pulley P downwards, and then through the pulley P 4 to the sledge placed at the end of the wooden road, which is farthest from the machine. Let the boy, by a rope fastened to the extremity of one of the arms of the capstan, and passed over his shoulder, draw the cap-

stan round: he will wind the rope round the drum, and draw the sledge upon its road. To make the sledge advance twenty-four feet upon its road, the boy must have walked circularly 144 feet, which is six times as far, and he will be able to draw about three hundred weight, which is six times as much as in the last experiment.

It may now be pointed out, that the difference of space, passed through by the power in this experiment, is exactly equal to the difference of weight which the boy could draw without the capstan.

EXPERIMENT VII.

Let the rope be now attached to the smaller drum: the boy will draw nearly twice as much weight upon the sledge as before, and will go through double the space.

EXPERIMENT VIII.

Where there are a number of boys, let five or six of them, whose power of drawing (estimated as in Experiment I.) amounts to six times as much as the force of the boy at

the capstan, pull at the end of the rope which *was* fastened to the sledge ; they will balance the force of the boy at the capstan ; either they, or he, by a sudden pull, may advance ; but if they pull fairly, there will be no advantage on either part. In this experiment the rope should pass through the pulley P 3, and should be coiled round the larger drum. And it must be also observed, that in all experiments upon the motion of bodies, in which there is much friction, as where a sledge is employed, the results are never so uniform as in other circumstances.

The Pulley.

Upon the pulley we shall say little, as it is in every body's hands, and experiments may be tried upon it without any particular apparatus. It should, however, be distinctly inculcated, that the power is not increased by a fixed pulley. For this purpose, a wheel without a rim, or, to speak with more propriety, a number of spokes fixed in a nave should be employed. (Plate 2. Fig. 9.) Pieces like the heads of crutches should be fixed at the ends of these spokes, to receive

a piece of girth-web, which is used instead of a cord, because a cord would be unsteady ; and a strap of iron with a hook to it should play upon the centre, by which it may at times be suspended, and from which at other times a weight may be hung.

EXPERIMENT. IX.

Let this skeleton of a pulley be hung by the iron strap from the transom of the frame ; fasten a piece of web to one of the radii, and another to the end of the opposite radius. If two boys of equal weight pull these pieces of girth-web, they will balance each other ; or two equal weights hung to these webs will be in equilibrio. If a piece of girth-web be put round the uppermost radius, two equal weights hung at the ends of it will remain immoveable ; but if either of them be pulled, or if a small additional weight be added to either of them, it will descend, and the web will apply itself successively to the ascending radii, and will detach itself from those that are descending. If this movement be carefully considered, it will be perceived

that the web, in unfolding itself, acts in the same manner upon the radii as two ropes would if they were hung to the extremities of the opposite radii in succession. The two radii which are opposite may be considered as a lever of the first sort, where the centre is in the middle of the lever ; as each end moves through an equal space, there is no mechanical advantage. But if this skeleton pulley be employed as a common *block* or *tackle*, its motions and properties will be entirely different.

EXPERIMENT X. Plate 2, Fig. 9.

Nail a piece of girth-web to a post, at the distance of three or four feet from the ground fasten the other end of it to one of the radii : fasten another piece of web to the opposite radius, and let a boy hold the skeleton pulley suspended by the web ; hook weights to the strap that hangs from the centre. The end of the radius, to which the fixed girth-web is fastened, will remain immoveable ; but, if the boy pulls the web which he holds in his hand upwards, he will be able to lift nearly double the weight, which he can raise from

the ground by a simple rope, without the machine, and he will perceive that his hand moves through twice as great a space as the weight ascends; he has therefore the mechanical advantage, which he would have by a lever of the second sort, as in Experiment III. Let a piece of web be put round the under radii; let one end of it be nailed to the post, and the other be held by the boy, and it will represent the application of a rope to a moveable pulley; if its motion be carefully considered, it will appear that the radii as they successively apply themselves to the web, represent a series of levers of the second kind. A pulley is nothing more than an infinite number of such levers: the cord at one end of the diameter serving as a fulcrum for the *organ* during its progress. *If this skeleton-pulley* be used horizontally instead of perpendicularly, the circumstances which have been mentioned will appear more obvious.

Upon the wooden road lay down a piece of girth-web; nail one end of it to the road; place the pulley upon the web at the other end of the board, and bringing the web over the radii, let the boy, taking hold of it, draw

the loaded sledge fastened to the hook at the centre of the pulley : he will draw nearly twice as much in this manner as he could without the pulley.*

Here the web lying on the road shows more distinctly, that it is quiescent where the lowest radius touches it ; and if the radii, as they tread upon it, are observed, their points will appear at rest, whilst the centre of the pulley will go as fast as the sledge, and the top of each radius successively (and the boy's hand which unfolds the web) will move twice as fast as the centre of the pulley and the sledge.

If a person, holding a stick in his hand, observes the relative motions of the top, and the middle, and the bottom of the stick, whilst he inclines it, he will see that the bottom of the stick has no motion on the ground, and that the middle has only half the motion of the top. This property of the pulley has been dwelt upon, because it elucidates the motion of a wheel rolling upon

* In all these experiments with the skeleton-pulley somebody must keep it in its proper direction ; as from its structure, which is contrived for illustration, not for practical use, it cannot retain its proper situation without assistance.

the ground ; and it explains a common paradox, which appears at first inexplicable, “ The bottom of a rolling-wheel never moves “ *upon* the road.” This is asserted only of a wheel moving over hard ground, which, in fact, may be considered rather as laying down its circumference upon the road, than as moving upon it.

The inclined Plane and the Wedge.

The *inclined plane* is to be next considered. When a heavy body is to be raised, it is often convenient to lay a sloping, artificial road of planks, upon which it may be pushed or drawn. This mechanical power, however, is but of little service without the assistance of wheels or rollers ; we shall therefore speak of it as it is applied in another manner, under the name of *the wedge*, which is in fact a moving, inclined plane ; but if it is required to explain the properties of the inclined plane by the Panorganon, the wooden road may be raised and set to any inclination that is required, and the sledge may be drawn upon it as in the former experiments.

Let one end of a lever, N, Plate 2. Fig. 7. with a wheel at one end of it, be hinged to the post of the frame, by means of a gudgeon driven or screwed into the post. To prevent this lever from deviating sideways, let a slip of wood be connected with it by a nail, which shall be fast in the lever, but which moves freely in a hole in the rail. The other end of this slip must be fastened to a stake driven into the ground at three or four feet from the lever, at one side of it, and towards the end in which the wheel is fixed (Plate 2. Fig. 10. which is à *vue d'oiseau*) in the same manner as the treadle of a common lathe is managed, and as the treadle of a loom is sometimes guided.*

EXPERIMENT XI.

Under the wheel of this lever, place an inclined plane or half-wedge (Plate 2. Fig. 7.) on the wooden road, with rollers under it, to

* In a loom, this secondary lever is called a *lamb*, by mistake, for *lam*; from *lamina*, a slip of wood.

prevent friction ;* fasten a rope to the foremost end of the wedge, and pass it through the pulleys (P. 4. and P. 3.) as in the fifth experiment. Let a boy draw the sledge by this rope over his shoulder, and he will find, that as it advances it will raise the weight upwards : the wedge is five feet long, and elevated one foot. Now, if the perpendicular ascent of the weight; and the space through which he advances be compared, he will find that the space through which he has passed will be five times as great as that through which the weight has ascended; and that *this* wedge has enabled him to raise five times as much as he could raise without it, if his strength were applied, as in Experiment I, without any mechanical advantage. By making this wedge in two parts, hinged together, with a graduated piece to keep them asunder, the

* There should be three rollers used ; one of them must be placed before the sledge, under which it will easily find its place, if the bottom of the sledge near the foremost end is a little sloped upwards. To retain this foremost roller in its place till the sledge meets it, it should be stuck slightly on the road with two small bits of wax or pitch.

wedge may be adjusted to any given obliquity ; and it will be always found, that the mechanical advantage of the wedge may be ascertained by comparing its perpendicular elevation with its base. If the base of the wedge is 2, 3, 4, 5, or any other number of times greater than its height, it will enable the boy to rise respectively 2, 3, 4, or 5 times more weight than he could do in Experiment I, by which his power is estimated.

The Screw.

The Screw is an inclined plane wound round a cylinder : the height of all its revolutions round the cylinder taken together, compared with the space through which the power that turns it passes, is the measure of its *mechanical advantage*.* Let the lever, used in the last experiment, be turned in such a manner as to reach from its gudgeon to the shaft of the Panorganon, guided by an attendant lever as before. (Plate 2. Fig. 8.) Let the wheel rest upon the lowest *helix* or thread of the screw : as the arms of the shaft

* *Mechanical advantage* is not a proper term ; but our language is deficient in proper technical terms. The word *power* is used so indiscriminately, that it is scarcely possible to convey our meaning, without employing it more strictly.

are turned round, the wheel will ascend, and carry up the weight which is fastened to the lever.* As the situation of the screw prevents the weight from being suspended exactly from the centre of the screw, proper allowance must be made for this in estimating the force of the screw, or determining the mechanical advantage gained by the lever: this can be done by measuring the perpendicular ascent of the weight, which in all cases is useful, and more expeditious than measuring the parts of a machine, and estimating its force by calculation; because the different diameters of ropes, and other small circumstances, are frequently mistaken in estimates—both methods should be employed and their results compared. The space passed

* In this experiment, the boy should pull as near as possible to the shaft, within a foot of it, for instance, else he will have such mechanical advantage as cannot be counterbalanced by any weight which the machine would be strong enough to bear: and in all these experiments we beg the learned reader to observe, that accuracy is not the object in view—different results will arise from adventitious circumstances, such as the pliability or hardness of ropes, the swelling or shrinking of wood, &c. &c. One practical advantage, however, will arise from these circumstances—the effect of friction, and the imperfection and deterioration of materials, will be impressed upon the young mechanic.

through by the moving power, and by that which it moves, are infallible data for estimating the power of engines.

Two material subjects of experiments yet remain for the Panorganon ; friction, and wheels of carriages : but we have already extended this article far beyond its just proportion to similar chapters in this work. We repeat, that it is not intended in this, or in any other part of our design, to write treatises upon science : but merely to point out methods of initiating young people in the rudiments of knowledge, and of giving them a clear and distinct view of those principles upon which they are founded. No preceptor, who has had experience, will cavil at the superficial knowledge of a boy of twelve or thirteen upon these subjects ; he will perceive that the general view which we wish to give our pupils of the useful arts and sciences, must certainly tend to form a taste for literature and investigation. The *sciolist* has learned only to *talk*—we wish to teach our pupils to *think*, upon the various objects of human speculation.

The Panorganon may be employed in trying the resistance of air and water ; the force

of different muscles ; and in a great variety of amusing and useful experiments. In academies, and private families, it may be erected in the place allotted for amusement, where it will furnish entertainment for many a vacant hour. When it has lost its novelty, the shaft may from time to time be taken down, and a swing may be suspended in its place. It may be constructed at the expense of five or six pounds ; that which stands before our window was made for less than three guineas, as we had many of the materials beside us for other purposes.*

Dec. 8, 1800.—“ Scientific Dialogues” have just reached us ; they seem well calculated to follow “ Evenings at Home,” as they contain a large quantity of accurate knowledge in a compendious form, and in clear and easy language. We had begun a book on a similar plan, which we are pleased to find is now become unnecessary : we shall therefore bound our humble labours to a small volume on the rudiments of science for young children.

* 1810—Since this was first published I have constructed a Panorganon on a small scale, and portable. It shall be sent to that useful work, “ Nicholson’s Journal.”

CHAPTER XVIII.

CHEMISTRY.

IN the first attempts to teach chemistry to children, objects should be selected, the principal properties of which may be easily discriminated by the senses of touch, taste, or smell; and such terms should be employed as do not require accurate definition.

When a child has been caught in a shower of snow, he goes to the fire to warm and dry himself. After he has been before the fire for some time, instead of becoming dry, he finds that he is wetter than he was before; water drops from his hat and clothes, and the snow with which he was covered disappears. If you ask him what was become of the snow, and why he has become wetter, he cannot tell you. Give him a tea-cup full of snow, desire him to place it before the fire, he perceives that the snow melts, that it has become water. If he puts his finger into the water, he finds that it is

warmer than snow ; he then perceives that the fire which warmed him, warmed likewise the snow which then became water ; or, in other words, he discovers, that the heat which came from the fire goes into the snow and melts it : he thus acquires the idea of the dissolution of snow by heat.

If the cup, containing the water or melted snow, be taken from the fire, and put out of the window on a frosty day, he perceives, that in time the water grows colder, that a thin, brittle skin spreads over it, which grows thicker by degrees, till at length all the water becomes ice ; and if the cup be again put before the fire, the ice returns to water. Thus he discovers, that by diminishing the heat of water it becomes ice ; by adding heat to ice it becomes water.

A child watches the drops of melted sealing-wax as they fall upon paper. When he sees you stir the wax about, and perceives that what was formerly hard now becomes soft, and very hot, he will apply his former knowledge of the effects of heat upon ice or snow, and he will tell you that the heat of the candle melts the wax. By these means the principle of the liquefaction of bodies by

heat will be imprinted upon his memory ; and you may now enlarge his idea of liquefaction.

When a lump of sugar is put into a dish of hot tea, a child sees that it becomes less and less, till at last it disappears. What has become of the sugar ? your pupil will say, that it is melted by the heat of the tea ; but if it be put into cold tea, or cold water, he will find that it dissolves, though more slowly. You should then show him some fine sand, some clay, and chalk, thrown into water, and he will perceive the difference between mechanical mixture or diffusion, and chemical mixture or solution. Chemical mixture, as that of salt in water, depends upon the attraction that subsists between the parts of the solid and fluid which are combined. Mechanical mixture is only the suspension of the parts of a solid in a fluid. When fine sand, chalk, or clay, are put into water, the water continues for some time turbid or muddy ; but by degrees the sand, &c. falls to the bottom, and the water becomes clear. In the chemical mixture of salt and water there is no muddiness ; the fluid is clear and transparent, even whilst it is stirred, and when it is

at rest there is no sediment, the salt being combined with the water ; a new fluid substance is formed out of the two simple bodies salt and water, and though the parts of the salt which compose the mixture are not discernible to the eye, yet they are perceptible by the taste.

After he has observed the mixture, the child should be asked whether he knows any method by which he can separate the salt from the water. In the boiling of a kettle of water he has seen the steam which issues from the mouth of the vessel ; he knows that the steam is formed by the heat from the fire, which joining with the water drives its parts farther asunder, and makes it take another form, that of vapour or steam. He may apply this knowledge to the separation of the salt and water ; he may turn the water into steam and the salt will be left in the vessel in a solid form. If, instead of evaporating the water, the boy had added a greater quantity of salt to the mixture, he would have seen, that after a certain time, the water would have dissolved no more of the salt ; the superfluous salt would fall to the bottom of the vessel, as the sand had done :

the pupil should then be told that the liquid is *saturated* with the solid.

By these simple experiments a child may acquire a general knowledge of solution, evaporation, and saturation, without the formality of a lecture, or the apparatus of a chemist. In all your attempts to instruct him in chemistry, the greatest care should be taken that he should completely understand one experiment before you proceed to a second. The common metaphorical expression, that the mind should have time to digest the food which it receives, is founded upon fact and observation.

Our pupil should see the solution of a variety of substances in fluids, as marble, chalk, or alkalis in acids; and camphor in spirits of wine: this last experiment he may try by himself, as it is not dangerous. Certainly many experiments are dangerous, and therefore unfit for children; but others may be selected, which they may safely try without any assistance: and those that are dangerous may, when they are necessary, be shown to them by some careful person. Their first experiments may be such as they can readily execute, and of which the result

may probably be successful: this success will please and interest the pupils, and will encourage them to perseverance.

A child may have some spirit of wine and some camphor given to him: the camphor will dissolve in the spirit of wine, till the spirit is saturated; but then he will be at a loss how to separate them again. To separate them, he must pour into the mixture a considerable quantity of water; he will immediately see the liquor, which was transparent, become muddy and white; this is owing to the separation of the camphor from the spirit; the camphor rises to the top of the vessel in the form of a curd. If the child had weighed the camphor, both before and after its solution, he would have found the result nearly the same. He should be informed, that this *chemical operation* (for technical terms may now be used) is called *precipitation*: the substance that is separated from the mixture by the introduction of another body is disengaged or precipitated from the mixture. In this instance the spirit of wine attracted the camphor, and therefore dissolved it. When the water was poured in, the spirit of wine attracted the water

more strongly than it did the camphor; the camphor being let loose, rose by its specific gravity to the surface of the mixture.

The pupil has now been shown two methods, by which a solid may be separated from a fluid in which it has been dissolved.

A still should now be produced, and the pupil should be instructed in the nature of distillation. By experiment he will learn the degrees of *volatility* of different bodies; or, in other words, he will learn that some are turned into vapour, by a greater or less degree of heat than others. The degrees of heat should be shown to him by the thermometer; and the use of the thermometer, and its nature, should be explained. As the pupil already knows that most bodies expand by heat, he will readily understand, that an increase of heat extends to mercury in the bulb of the thermometer, which, having no other space for its expansion, rises in the small glass tube; and the degree of heat to which it is exposed is marked by the figures on the scale of the instrument.

The business of distillation is to separate the more volatile from the less volatile parts of bodies. The whole mixture is put into

a vessel, under which there is fire : the most volatile liquor begins first to turn into vapour, and rises into a higher part of the vessel, which, being kept cold by being farther removed from the fire, or by water or snow, condenses the evaporated fluid ; after it has been condensed, it drops into another vessel. In the experiment that the child has just tried, after having separated the camphor from the spirit of wine, he may separate the spirit from the water by distillation. When the substance that rises, or that is separated from other bodies by heat is a solid, or when what is collected after the operation is solid, the process is not called distillation, but sublimation.

Our pupil may next be made acquainted with the general qualities of acids and alkalis. For instructing him in this part of chemistry, definition should as much as possible be avoided ; the mode of example, and ocular demonstration, should be pursued. Who would begin to explain by words the difference between an acid and an alkali, when these can be shown by experiments upon the substances themselves ? The first great difference, which is perceptible be-

tween an acid and an alkali, is their taste. Let a child have a distinct perception of the difference of their tastes ; let him be able to distinguish them when his eyes are shut ; let him taste the strongest of each so diluted with water as not to hurt him, and when he has once acquired distinct notions of the pungent taste of an alkali, and of the sour taste of an acid, he will never forget the difference. He must afterwards see the effects of an acid and alkali on the blue colour of vegetables at *separate times*, and not on the same day ; by these means he will more easily remember the experiments, and he will not confound their different results. The blue colour of vegetables is turned red by acids, and green by alkalies. Let your pupil take a radish, and scrape off the blue part into water ; it should be left for some time, till the water becomes of a blue colour : let him pour some of this liquor into two glasses ; add vinegar or lemon-juice to one of them, and the liquor will become red ; dissolve some alkali in water, and pour this into the other glass, and the dissolved radish will become green. If into the red mixture a sufficient quantity of alkali be poured,

the colour will change into green ; and if into the liquor which was made green a sufficient quantity of acid be poured, the colour will change to red : thus alternately you may pour acid or alkali, and produce a red or green colour successively. Paper stained with the blue colour of vegetables is called *test* paper ; this is changed by the least powerful of the acids or alkalies, and will therefore be peculiarly useful in the first experiments of our young pupils. A child should for safety use acids considerably diluted with water in his first trials, but he should be shown that the effects are similar whatever acids we employ ; only the colour will be darker when we make use of the less, than when we use the more dilute acids. By degrees the pupil should be accustomed to employ the strong acids ; such as the vitriolic, the nitric, and the muriatic, which three are called fossil acids, to distinguish them from the vegetable, or weaker acids. We may be permitted to advise the young chemist to acquire the habit of wiping the neck of the vessel out of which he pours any strong acid, as the drops of the liquor will not then burn his hand when he

takes hold of the bottle ; nor will they injure the table upon which he is at work. This custom, trivial as it may seem, is of advantage, as it gives an appearance of order, and of ease, and steadiness, which are all necessary in trying chemical experiments. The little pupil may be told, that the custom we have just mentioned is the constant practice of that great chemist Dr. Black.

We should take care how we first use the term *salt* in speaking to children, lest they should acquire indistinct ideas : he should be told, that the kind of salt which he eats is not the only salt in the world ; he may be put in mind of the kind of salts which he has perhaps smelt in smelling-bottles ; and he should be further told, that there are a number of earthy, alkaline, and metallic salts, with which he will in time become acquainted.

When an acid is put upon potash, or upon lime-stone, chalk, or marle, a bubbling may be observed, and a noise is heard ; a child should be told, that this is called *effervescence*. After some time, the effervescence ceases, and the lime-stone, &c. are dissolved in the acid. This effervescence, the child

should be informed, arises from the escape of a considerable quantity of a particular sort of air, called fixed air, or carbonic acid gas. In the solution of the lime in the acid, the lime and acid have an attraction for one another.; but as the present mixture has no attraction for the gas, it escapes, and in rising forms the bubbling or effervescence. This may be proved to a child, by showing him, that if an acid is poured upon caustic lime (lime which has had this gas taken from it by fire), there will be no effervescence.

There are various other chemical experiments with which children may amuse themselves; they may be employed in analysing marle or clays; and they may be provided with materials for making ink. It should be pointed out to them, that the common domestic and culinary operations of making butter and cheese, baking, brewing, &c. are all chemical processes. We hope the reader will not imagine, that we have in this slight sketch pretended to point out the *best* experiments which can be devised for children; we have only offered a few of the simplest which occur to us, that parents may not at the conclusion of this chapter

exclaim, "What is to be done? How are
" we to *begin*! What experiments are
" suited to children? If we knew, our chil-
" dren should try them?"

It is of little consequence what particular experiment is selected as the first; we only wish to show, that the minds of children may be turned to this subject; and that, by accustoming them to observation, we give them not only the power of learning what has been already discovered, but of adding, as they grow older, something to the general stock of human knowledge.

CHAPTER XIX.

ON PUBLIC AND PRIVATE EDUCATION.

THE anxious parent, after what has been said concerning tasks and classical literature, will inquire whether the whole plan of education we recommend is intended to relate to public or to private education. It is intended to relate to both. It is not usual to send children to school before they are eight or nine years old ; our object is, to show how education may be conducted to that age in such a manner, that children may be well prepared for the acquisition of all the knowledge usually taught at schools, and may be free from many of the faults that pupils sometimes have acquired before they are sent to any public seminary. It is obvious, that public preceptors would be saved much useless labour and anxiety, were parents to take some pains in the previous instruction of their children ; and more especially, if

they were to prevent them from learning a taste for total idleness or habits of obstinacy and of falsehood, which can scarcely be conquered by the utmost care and vigilance. We can assure parents from experience, that if they pursue steadily a proper plan with regard to the understanding and the moral habits of their children, they will not have much trouble with their education after the age we have mentioned, so long as they continue to instruct them at home ; and if they send them to public schools, their superiority in intellect and in conduct will quickly appear.

Though we have been principally attentive to all the circumstances which can be essential to the management of young people during the first nine or ten years of their lives, we have by no means confined our observation to this period alone ; we have endeavoured to lay before parents a general view of the human mind (as far as it relates to our subject), of proper methods of teaching, and of the objects of rational instruction ; so that they may extend the principles which we have laid down through all the succeeding periods of education, and may

apply them as it may best suit their peculiar situations, or their peculiar wishes. We are fully conscious, that we have executed but very imperfectly even our own design ; that experimental education is yet but in its infancy, and that boundless space for improvement remains ; but we flatter ourselves, that attentive parents and preceptors will consider with candour the practical assistance which is offered to them, especially as we have endeavoured to express our opinions without dogmatical presumption, and without the illiberal exclusion of any existing institutions or prevailing systems. People, who, even with the best intentions, attack with violence any of these, and who do not consider what is practicable, as well as what ought to be done, are not likely to persuade, or to convince, mankind to increase the general sum of happiness, or their own portion of felicity. Those who really desire to be of service to society should point out decidedly, but with temperate indulgence for the feelings and opinions of others, whatever appears to them absurd or reprehensible in any prevailing customs ; having done this, they will rest in the persuasion, that

what is most reasonable will ultimately prevail.

Mankind, at least the prudent and rational part of mankind, have an aversion to pull down till they have a moral certainty that they can build up a better edifice than that which has been destroyed. "Would you," says an eminent writer, "convince me, that "the house I live in is a bad one, and would "you persuade me to quit it, build a better "in my neighbourhood; I shall be very "ready to go into it, and shall return you "my very sincere thanks. Till another "house be ready, a wise man will stay in "his old one, however inconvenient its arrangement, however seducing the plans of "the enthusiastic projector." We do not set up for projectors, or reformers; we wish to keep steadily in view the actual state of things, as well as our own hopes of progressive improvement; and to seize and combine all that can be immediately serviceable; all that can assist, without precipitating improvements. Every well-informed parent, and every liberal school-master, must be sensible, that there are many circumstances in the management of public education which

might be condemned with reason ; that too much time is sacrificed to the study of the learned languages ; that too little attention is paid to the general improvement of the understanding and formation of the moral character ; that a school-master cannot pay attention to the temper or habits of each of his numerous scholars ; and that parents during that portion of the year which their children spend with them, are not sufficiently solicitous to co-operate with the views of the school-master ; so that the public is counteracted by the private education. These and many other things we have heard objected to schools ; but what are we to put in the place of schools ? How are vast numbers who are themselves occupied in public or professional pursuits ; how are men in business or in trade, artists or manufacturers, to educate their families when they have not time to attend to them ; when they may not think themselves perfectly prepared to undertake the classical instruction, and entire education of their children ; and when, perhaps, they may not be in circumstances to engage the assistance of such a preceptor as they could approve ? It is obvious, that

if in such situations, parents were to attempt to educate their children at home, they would harass themselves, and probably spoil their pupils irrecoverably. It would, therefore, be in every respect impolitic and cruel to disgust those with public schools, who have no other resource for the education of their families. There is another reason which has perhaps operated upon many in the middle ranks of life, unperceived, and which determines them in favour of public education. Persons of narrow fortune, or persons who have acquired wealth in business, are often desirous of breeding up their sons to the liberal professions; and they are conscious that the company, the language, and the style of life, which their children would be accustomed to at home, are beneath what would be suited to their future professions. Public schools efface this rusticity, and correct the faults of provincial dialect: in this point of view they are highly advantageous. We strongly recommend it to such parents to send their children to large public schools, to Eton or Westminster; not to any small school: much less to one in their own neighbourhood. Small schools

are apt to be filled with persons of nearly the same stations, and out of the same neighbourhood : from this circumstance they contribute to perpetuate uncouth, antiquated idioms, and many of those obscure prejudices which cloud the intellect in the future business of life.

Whilst we admit the necessity which compels the largest portion of society to prefer public seminaries of education, it is incumbent upon us to caution parents from expecting that the moral character, the understandings, or the tempers of their children, should be improved at large schools : there the learned languages, we acknowledge, are successfully taught. Many satisfy themselves with the assertion, that public education is the least troublesome ; that a boy once sent to school is settled for several years of life, and will require only short returns of parental care twice a year at the holidays. It is hardly to be supposed, that those who think in this manner should have paid any anxious, or at least any judicious attention to the education of their children, previously to sending them to school. It is not likely that they should be

very solicitous about the commencement of an education which they never meant to finish: they would think that what could be done during the first few years of life is of little consequence; that children from four to seven years old are too young to be taught; and that a school would speedily supply all deficiencies, and correct all those faults which begin at that age to be troublesome at home. Thus, to a public school, as to a general infirmary for mental disease, all desperate subjects are sent, as the last resource. They take with them the contagion of their vices, which quickly runs through the whole tribe of their companions, especially amongst those who happen to be nearly of their own age, whose sympathy peculiarly exposes them to the danger of infection. We are often told, that as young people have the strongest sympathy with each other, they will learn most effectually from each other's example. They do learn quickly from example, and this is one of the dangers of a public school: a danger which is not necessary, but incidental; a danger against which no school-master can possibly guard, but which parents can, by

the previous education of the pupils, prevent. Boys are led, driven, or carried to school; and in a school-room they first meet with those who are to be their fellow prisoners. They do not come with fresh unprejudiced minds to commence their course of social education, they bring with them all the ideas and habits which they have already learned at their respective homes. It is highly unreasonable to expect that all these habits should be reformed by a public preceptor. If he had patience, how could he have time for such an undertaking? Those who have never attempted to break a pupil of any one bad habit, have no idea of the degree of patience requisite to success. We once heard an officer of dragoons assert, that he would rather break twenty horses of their bad habits, than one man of his. The proportionate difficulty of teaching boys may be easily calculated.

It is sometimes asserted, that the novelty of a school life, the change of situation, alters the habits, and forms in boys a new character. Habits of eight or nine years' standing cannot be instantaneously, perhaps can never be radically destroyed; they will

mix themselves imperceptibly with the new ideas which are planted in the mind, and though these may strike the eye by the rapidity of their growth, the others, which have taken a strong root, will not easily be dispossessed of the soil. In this new character, as it is called, there will to a discerning eye appear a strong mixture of the old disposition. The boy, who at home lived with his father's servants, and who was never taught any species of literature, will not acquire a taste for it at school merely by being compelled to learn his lessons; the boy who at home was suffered to be the little tyrant of a family, will, it is true, be forced to submit to superior strength or superior numbers at school;* but does it improve the temper to practise alternately the habits of a tyrant and a slave? The lesson which experience usually teaches to the temper of a school-boy is, that strength, and power, and cunning, will inevitably govern in society; as to reason, it is out of the question, it would be hissed or laughed out of company. With

* V. Barnes's *Essays on Public and Private Education*.
The Memoirs of the Manchester Society.

respect to social virtues, they are commonly amongst school-boys so much mixed with party spirit, that they mislead even the best dispositions. A boy at home, whose pleasures are all immediately connected with the idea of self, will not feel a sudden enlargement of mind from entering a public school. He will, probably, preserve his selfish character in his new society; or, if he catches that of his companions, the progress is not great in moral education from selfishness to spirit of party; the one is a despicable, the other a dangerous principle of action. It has been observed, that what we are when we are twenty, depends on what we were when we were ten years old. What a young man is at college, depends upon what he was at school; and what he is at school, depends upon what he was before he went to school. In his father's house the first important lessons, those which decide his future abilities and character, must be learned. We have repeated this idea, and placed it in different points of view, in hopes that it will catch and fix the attention. Suppose that parents educated their children well for the first eight or nine

years of their lives, and then sent them all to public seminaries, what a difference this must immediately make in public education : the boys would be disposed to improve themselves with all the ardour which the most sanguine preceptor could desire ; their tutors would find that there was nothing to be *unlearned* : no habits of idleness to conquer, no perverse stupidity would provoke them ; no capricious contempt of application would appear in pupils of the quickest abilities. The moral education could then be made a part of the preceptor's care, with some hopes of success ; the pupils would all have learned the first necessary moral principles and habits ; they would, consequently, be all fit companions for each other ; in each other's society they would continue to be governed by the same ideas of right and wrong by which they had been governed all their lives ; they would not have any new character to learn ; they would improve by mixing with numbers, in the social virtues, without learning party spirit ; and though they would love their companions, they would not therefore combine together to treat their instructors as pedagogues and

tyrants. This may be thought an Utopian idea of a school: indeed it is very improbable, that out of the numbers of parents who send their children to large schools, many should suddenly be much moved, by any thing that we can say, to persuade them to take serious trouble in their previous instruction. But much may be effected by gradual attempts: ten well-educated boys, sent to a public seminary at nine or ten years old, would, probably, far surpass their competitors in every respect; they would inspire others with so much emulation, would do their parents and preceptors so much credit, that numbers would eagerly inquire into the causes of their superiority: and these boys would, perhaps, do more good by their example, than by their actual acquirements. We do not mean to promise that a boy judiciously educated shall appear at ten years old a prodigy of learning; far from it; we should not even estimate his capacity, or the chance of his future progress, by the quantity of knowledge stored in his memory, by the number of Latin lines he had got by rote, by his expertness in repeating the rules of his

grammar, by his pointing out a number of places readily in a map, or even by his knowing the latitude and longitude of all the capital cities in Europe; these are all useful articles of knowledge, but they are not the tests of a good education. We should rather, if we were to examine a boy of ten years old, for the credit of his parents, produce proofs of his being able to reason accurately; of his quickness in invention, of his habits of industry and application, of his having learned to generalise his ideas, and to apply his observations and his principles; if we found that he had learned all, or any of these things, we should be in little pain about grammar, or geography, or even Latin; we should be tolerably certain that he would not long remain deficient in any of these; we should know that he would overtake and surpass a competitor who had only been technically taught, as certainly as that the giant would overtake the panting dwarf, who might have many miles the start of him in the race. We do not mean to say, that a boy should not be taught the principles of grammar, and some knowledge of geography, at the same time that his under-

standing is cultivated in the most enlarged manner: these objects are not incompatible, and we particularly recommend it to *parents who intend to send their children to school*, early to give them confidence in themselves, by securing the rudiments of literary education; otherwise their pupils, with a real superiority of understanding, may feel depressed, and may perhaps be despised, when they mix at a public school with numbers who will estimate their abilities merely by their proficiency in particular studies.

Mr. Frend,* in recommending the study of arithmetic for young people, has very sensibly remarkèd, that boys bred up in public schools are apt to compare themselves with each other merely as classical scholars; and, when they afterwards go into the world excellent Greek and Latin scholars, are much astonished to perceive, that many of the companions whom they had undervalued at school, get before them when they come to actual business, and to active life. Many in the pursuit of their classical studies, have neglected all other knowledge, especially that of

* V. Mr. Frend's Principles of Algebra.

arithmetic, that useful, essential branch of knowledge, without which neither the abstract sciences nor practical arts can be taught. The precision which the habit of applying the common rules of arithmetic gives to the understanding, is highly advantageous, particularly to young people of vivacity, or, as others would say, of genius. The influence which the habit of *estimating* has upon that part of the moral character called prudence is of material consequence. We shall further explain upon this subject when we speak of the means of teaching prudence and reasoning to children ; we only mention the general ideas here, to induce intelligent parents to attend early to these particulars. If they mean to send their children to public classical schools, it must be peculiarly advantageous to teach them early the rudiments of arithmetic, and to give them the habit of applying their knowledge in the common business of life. We forbear to enumerate other branches of knowledge with which young people might be familiarised before they leave home, because we do not wish to alarm with perplexing variety. One

thing well taught is better than a hundred taught imperfectly.

The effect of the pains which are taken in the first nine or ten years of a child's life may not be apparent immediately to the view, but it will gradually become visible. To careless observers, two boys of nine years old, who have been very differently educated, may appear nearly alike in abilities, in temper, and in the promise of future character. Send them both to a large public school, let them be placed in the same new situation, and exposed to the same trials, the difference will then appear; the difference in a few years will be such as to strike every eye, and people will wonder what can have produced in so short a time such an amazing change. In the Hindoo art of dyeing, the same liquors communicate different colours to particular spots, according to the several bases previously applied: to the ignorant eye no difference is discernible on the ground, nor can the design be distinctly traced, till the air, and light, and open exposure, bring out the bright and permanent colours to the wondering eye of the spectator.

Besides bestowing some attention upon early education, parents who send their children to school may much assist the public preceptor by judicious conduct towards children during that portion of the year which is usually spent at home.* Mistaken parental fondness delights to make the period of time which children spend at home as striking a contrast as possible with that which they pass at school. The holidays are made a jubilee, or rather resemble the Saturnalia. Even if parents do not wish to represent a school-master as a tyrant, they are by no means displeased to observe, that he is not the friend or favourite of their children. They put themselves in mean competition with him for their affection, instead of co-operating with him in all his views for their advantage. How is it possible, that any master can long retain the wish or the hope of succeeding in any plan of education, if he perceives that his pupils are but partially under his government? if his influence over their minds be counteracted from time to time by the superior influence of their pa-

* V. Williams's Lectures on Education.

rents? An influence which he must not wish to destroy. To him is left the power to punish, it is true; but parents reserve to themselves the privilege to reward. The ancients did not suppose, that even Jupiter could govern the world without the command of pain or pleasure. Upon the vases near his throne depended his influence over mankind.

And what are these holiday delights? And in what consists parental rewards? In dissipation and idleness. With these are consequently associated the idea of happiness and the name of pleasure; the name is often sufficient, without the reality. During the vacation children have a glimpse of what is called *the world*: and then are sent back to their prison with heads full of visions of liberty, and with a second sight of the blessed lives which they are to lead when they have left school for ever. What man of sense, who has studied the human mind, who knows that the success of any plan of education must depend upon the concurrence of every person, and every circumstance, for years together, to the same point, would undertake any thing more than

the partial instruction of pupils, whose leading associations and habits must be perpetually broken? When the work of school is undone during the holidays, what hand could have the patience perpetually to repair the web?

During the vacations spent at home children may be made extremely happy in the society and in the affections of their friends, but they need not be taught that idleness is pleasure: on the contrary, occupation should by all possible methods be rendered agreeable to them; their school acquisitions, their knowledge and taste, should be drawn out in conversation, and they should be made to feel the value of what they have been taught; by these means there would be some connection, some unity of design, preserved in their education. Their school-masters and tutors should never become the theme of insipid ridicule; nor should parents ever put their influence in competition with that of a preceptor: on the contrary, his pupils should uniformly perceive that from his authority there is no appeal, except to the superior power of reason, which should be the avowed arbiter to which all should be submitted.

Some of the dangerous effects of that mixed society at schools, of which we have complained, may be counteracted by the judicious conduct of parents during the time which children spend at home. A better view of society, more enlarged ideas of friendship and of justice may be given to young people, and the vile principle of party spirit may be treated with just contempt and ridicule. Some standard, some rules may be taught to them, by which they may judge of character independently of prejudice, or childish prepossession.

“ I do not like you, Doctor Fell ;
“ The reason why, I cannot tell :
“ But this I know, and know full well,
“ I do not like you, Doctor Fell,”—

is an exact specimen of the usual mode of reasoning, of the usual method in which an ill-educated school-boy expresses his opinion and feelings about all persons and all things. “ The reason why,” should always be inquired whenever children express preference or aversion.

To connect the idea of childhood with that of inferiority and contempt is unjust

and impolitic ; it should not be made a reproach to young people to be young, nor should it be pointed out to them, that when they are some years older they will be more respected ; the degree of respect which they really command, whether in youth or age, will depend upon their own conduct, their knowledge, and their powers of being useful and agreeable to others. If they are convinced of this, children will not, at eight years old, long to be fifteen, nor at fifteen to be one-and-twenty ; proper subordination would be preserved, and the scale of happiness would not have a forced and false connexion with that of age. If parents did not first excite foolish wishes in the minds of their children, and then imprudently promise that these wishes shall be gratified at certain periods of their existence, children would not be impatient to pass over the years of childhood : those years which idle boys wish to pass over as quickly as possible, men without occupation regret as the happiest of their existence. To a child who has been promised that he shall put on manly apparel on his next birth-day, the space of time is slow and heavy until that happy æra arrive.

Fix the day when a boy shall leave school, and he wishes instantly to mount the chariot and lash the horses of the sun. Nor when he enters the world, will his restless spirit be satisfied; the first step gained, he looks anxiously forward to the height of manly elevation,

“ And the brisk minor pants for twenty-one.”

These juvenile anticipations diminish the real happiness of life; those who are in continual expectation never enjoy the present; the habit of expectation is dangerous to the mind, it suspends all industry, all voluntary exertion. Young men, who early acquire this habit, find existence insipid to them without the immediate stimuli of hope and fear: no matter what the object is, they must have something to sigh for; a curricie, a cockade, or an opera-dancer.

Much may be done by education to prevent this boyish restlessness. Parents should refrain from those imprudent promises, and slight innuendoes which the youthful imagination always misunderstands and exaggerates. Never let the moment in which a young man quits a seminary of education, be re-

presented as a moment in which all instruction, labour, and restraints, cease. The idea, that he must restrain and instruct himself, that he must complete his own education, should be excited in the young man's mind ; nor should he be suffered to imagine that his education is finished, because he has attained to some given age.

When a common school-boy bids adieu to that school which he has been taught to consider as a prison, he exults in his escape from books and masters, and from all the moral and intellectual discipline to which he imagines that it is the peculiar disgrace and misery of childhood to be condemned. He is impatient to be thought a man, but his ideas of the manly character are erroneous, consequently his ambition will only mislead him. From his companions whilst at school, from his father's acquaintance, and his father's servants, with whom he has been suffered to consort during the vacations, he has collected imperfect notions of life, fashion, and society. These do not mix well in his mind with the examples and precepts of Greek and Roman virtue ; a temporary enthusiasm may have been kindled in

his soul by the eloquence of antiquity ; but for want of sympathy this enthusiasm necessarily dies away. His heroes are not the heroes of the present times ; the maxims of his sages are not easily introduced into the conversations of the day. At the tea-table he now seldom hears even the name of Plato ; and he often blushes for not knowing a line from a popular English poet, whilst he could repeat a cento from Horace, Virgil, and Homer ; or an antistrophe from Æschylus or Euripides. He feels ashamed to produce the knowledge he has acquired, because he has not learned sufficient address to produce it without pedantry. On his entrance into the world there remains in his mind no grateful, no affectionate, no respectful remembrance of those under whose care he has passed so many years of his life. He has escaped from the restraints imposed by his school-master, and the connexion is dissolved for ever.

But when a son separates from his father, if he has been well educated, he wishes to continue his own education : the course of his ideas are not suddenly broken ; what he has been, joins immediately with what he is

to be ; his knowledge applies to real life, it is such as he can use in all companies ; there is no sudden metamorphosis in any of the objects of his ambition ; the boy and man are the same individual. Pleasure will not influence him merely by her name, or by the contrast of her appearance with the rigid discipline of scholastic learning ; he will feel the difference between pleasure and happiness, and his early taste for domestic life will remain or return upon his mind. His old precepts and new motives are not at war with each other ; his experience will confirm his education ; and external circumstances will call forth his latent virtues. When he looks back he can trace the gradual growth of his knowledge ; when he looks forward it is with the delightful hope of progressive improvement. A desire in some degree to repay the care, to deserve the esteem, to fulfil the animating prophecies, or to justify the fond hopes of the parent who has watched over his education, is one of the strongest motives to an ingenuous young man ; it is an incentive to exertion in every honourable pursuit. A son who has been judiciously and kindly educated, will feel

the value of his father's friendship. The perception that no man can be more entirely interested in every thing that concerns him ; the idea that no one more than his father can share in his glory or in his disgrace, will press upon his heart, will rest upon his understanding. Upon these ideas, upon this common family interest, the real strength of the connexion between a father and his son depends. No public preceptor can have the same advantages ; his connexion with his pupil is not necessarily formed to last.

After having spoken with freedom, but we hope with moderation, of public schools, we may perhaps be asked our opinion of universities. Are universities the most splendid repositories of learning ? We are not afraid to declare an opinion in the negative. Smith, in his *Wealth of Nations*, has stated some objections to them, we think, with unanswerable force of reasoning. We do not however wish to destroy what we do not entirely approve. Far be that insanity from our minds which would, like that of Orlando, tear up the academic groves ; the madness of innovation is as destructive as the bigotry

of ancient establishments. The learning and the views of the rising century must have different objects from those of the wisdom and benevolence of Alfred, Belsham, or Wolsey ; and without depreciating or destroying the magnificence or establishments of universities, may not their institutions be improved ? May not their splendid halls echo with other sounds than the exploded metaphysics of the schools ; and may not other learning be as much rewarded and esteemed as pure *Latinity* ?

We must here distinctly point out, that young men designed for the army or the navy should not be educated in private families. The domestic habits, the learned leisure of private education, are unsuited to them ; it would be absurd to waste many years in teaching them the elegancies of classic literature, which can probably be of no essential use to them ; it would be cruel to give them a nice and refined choice of right and wrong, when it will be their professional duty to act under the command of others : when implicit, prompt, unquestioning obedience must be their first military virtue. Military academies, where the sciences practically es-

sential to the professions are taught, must be the best situations for all young sailors and soldiers ; strict instruction for them is the best education. We do not here inquire how far these professions are necessary in society ; it is obvious that in the present state of European cultivation, soldiers and sailors are indispensable to every nation. We hope, however, that a taste for peace may, at some future period in the history of the world, succeed to the passion for military glory ; and, in the mean time, we may safely recommend it to parents, never to trust a young man designed for a soldier to the care of a philosopher, even if it were possible to find one who would undertake the charge.

We hope that we have shown ourselves the friends of the public preceptor, that we have pointed out the practicable means of improving public institutions by parental care and parental co-operation. But until such a meliorating plan shall actually have been carried into effect, we cannot hesitate to assert, that even when the abilities of the parent are inferior to those of the public preceptor, the means of ensuring success preponderate in favour of private education.

A father, who has time, talents, and temper to educate his family, is certainly the best possible preceptor, and his reward will be the highest degree of domestic felicity. If from his situation he is obliged to forego this reward, he may select some men of literature, sense, and integrity, to whom he can confide his children. Opulent families should not think any reward too munificent for such a private preceptor. Even in an economic point of view, it is prudent to calculate how many thousands lavished on the turf, or lost at the gaming-table, might have been saved to the heirs of noble and wealthy families by a judicious education.

CHAPTER XX.

ON FEMALE ACCOMPLISHMENTS, MASTERS,
AND GOVERNESSES.

SOME years ago an opera-dancer at Lyons, whose charms were upon the wane, applied to an English gentleman for a recommendation to some of his friends in England, as a governess for young ladies. "Do you doubt," said the lady (observing that the gentleman was somewhat confounded by the easy assurance of her request), "do you doubt my capability? Do I not speak good Parisian French? Have I any provincial accent? I will undertake to teach the language grammatically. And for music and dancing, without vanity, may I not pretend to teach them to any young person?" The lady's excellence in all these particulars was unquestionable. She was beyond dispute a highly accomplished woman. Pressed by her forcible interroga-

tories, the gentleman was compelled to hint, that an English mother of a family might be inconveniently inquisitive about the private history of a person who was to educate her daughters. “ Oh,” said the lady, “ I can “ change my name ; and at my age nobody “ will make farther inquiries.”

Before we can determine how far this lady’s pretensions were ill founded, and before we can exactly decide what qualifications are most desirable in a governess, we must form some estimate of the positive and relative value of what are called accomplishments.

We are not going to attack any of them with cynical asperity, or with the ambition to establish any new dogmatical tenets in the place of old received opinions. It can, however, do no harm to discuss this important subject with proper reverence and humility. Without alarming those mothers, who declare themselves above all things anxious for the rapid progress of their daughters in every fashionable accomplishment, it may be innocently asked, what price such mothers are willing to pay for these *advantages*.

Any price within the limits of our fortune ! they would probably exclaim.

There are other standards by which we can measure the value of objects, as well as by money. “ Fond mother, would you, if
“ it were in your power, accept of an opera-
“ dancer for your daughter’s governess, upon
“ condition that you should live to see that
“ daughter dance the best minuet at a birth-
“ night ball ?”

“ Not for the world,” replies the mother.
“ Do you think I would hazard my daugh-
“ ter’s innocence and reputation, for the
“ sake of seeing her dance a good minuet ?
“ Shocking ! Absurd ! What can you mean
“ by such an outrageous question ?”

“ To fix your attention. Where the mind
“ has not precisely ascertained its wishes, it
“ is sometimes useful to consider extremes ;
“ by determining what price you will *not*
“ pay, we shall at length ascertain the value
“ which you set upon the object. Repu-
“ tation and innocence, you say, you will
“ not, upon any account, hazard. But
“ would you consent that your daughter
“ should, by universal acclamation, be pro-

“ claimed the most accomplished woman in
 “ Europe, upon the simple condition, that
 “ she should pass her days in a nunnery ?”

“ I should have no right to make such a
 “ condition ; domestic happiness I ought
 “ certainly to prefer to public admiration,
 “ for my daughter. Her accomplishments
 “ would be of little use to her, if she were to
 “ be shut up from the world : who is to be
 “ the judge of them in a nunnery ?”

“ I will say no more about the nunnery.
 “ But would not you, as a good mother, con-
 “ sent to have your daughter turned into an
 “ automaton for eight hours in every day for
 “ fifteen years, for the promise of hearing
 “ her, at the end of that time, pronounced
 “ the first private performer at the most fa-
 “ shionable and most crowded concert in
 “ London ?”

“ Eight hours a day for fifteen years are
 “ too much. No one need practise so much
 “ to become the first performer in England ?”

“ That is another question. You have
 “ not told me whether you would sacrifice
 “ so much of your daughter’s existence for
 “ such an object, supposing that you could
 “ obtain it at no other price.”

“For *one* concert,” says the hesitating mother, “I think it would be too high a price. Yet I would give any thing to have my daughter play better than any one in England. What a distinction! She would be immediately taken notice of in all companies! She might get into the first circles in London! She would want neither beauty nor fortune to recommend her! She would be a match for any man, who has any taste for music! And music is universally admired, even by those who have the misfortune to have no taste for it. Besides, it is such an elegant accomplishment in itself! Such a constant source of innocent amusement! Putting every thing else out of the question, I should wish my daughter to have every possible accomplishment, because accomplishments are such charming *resources* for young women, they keep them out of harm’s way, they make a vast deal of their idle time pass so pleasantly to themselves and others! This is my *chief* reason for liking them.”

Here are so many reasons brought together at once, along with the chief reason, that they are altogether unanswerable; we

must separate, class, and consider them one at a time. Accomplishments, it seems, are valuable, as being the objects "of universal admiration. Some accomplishments have another species of value, as they are tickets of admission to fashionable company. Accomplishments have another, and a higher species of value, as they are supposed to increase a young lady's chance of a prize in the matrimonial lottery. Accomplishments have also a value as resources against *ennui*, as they afford continual amusement and innocent occupation. This is ostensibly their chief praise; it deserves to be considered with respect. False and odious must be that philosophy which would destroy any one of the innocent pleasures of our existence. No reward was thought too high for the invention of a new pleasure; no punishment would be thought too severe for those who would destroy an old one. Women are peculiarly restrained in their situation, and in their employments, by the customs of society: to diminish the number of these employments, therefore, would be cruel; they should rather be encouraged, by all means, to cultivate those tastes which

can attach them to their home, and which can preserve them from the miseries of dissipation. Every sedentary occupation must be valuable to those who are to lead sedentary lives ; and every art, however trifling in itself, which tends to enliven and embellish domestic life, must be advantageous, not only to the female sex, but to society in general. As far as accomplishments can contribute to all or any of these excellent purposes, they must be just objects of attention in early education.

A number of experiments have already been tried ; let us examine the result. Out of the prodigious number of young women who learn music and drawing, for instance, how many are there, who, after they become mistresses of their own time, and after they have the choice of their own amusements, continue to practise these accomplishments for the pure pleasure of the occupation ? As soon as a young lady is married, does not she frequently discover, that “ she really “ has not *leisure* to cultivate talents which “ take up so much time.” Does not she complain of the labour of practising four or five hours a day to keep up her musical

character? What motive has she for perseverance? She is, perhaps, already tired of playing to all her acquaintance. She may really take pleasure in hearing good music; but her own performance will not then please her ear so much as that of many others. She will prefer the more indolent pleasure of hearing the best music that can be heard for money at public concerts. She will then of course leave off playing, but continue very fond of music. How often is the labour of years thus lost for ever!

Those who have excelled in drawing do not appear to abandon the occupation so suddenly; it does not demand such an inordinate quantity of time to keep up the talent; the exertion of the imitative powers is agreeable; the employment is progressive, and therefore the mind is carried on to complete what has been begun. Independently of all applause, which may be expected for the performance, there is a pleasure in going on with the work. But setting aside enthusiasm and habit, the probability that any sensible person will continue to pursue a given employment, must depend in a great measure, upon their own conviction of its

utility, or of its being agreeable to those whom they wish to please. The pleasure which a lady's friends receive from her drawings, arises chiefly from the perception of their comparative excellence. Comparative excellence is all to which gentlewomen-artists usually pretend; all to which they expect to attain; positive excellence is scarcely attained by one in a hundred. Compared with the performances of other young ladies of their acquaintance, the drawings of Miss X or Y may be justly considered as charming! admirable! and astonishing! But there are few drawings by young ladies which can be compared with those of a professed artist. The wishes of obliging friends are satisfied with a few drawings in handsome frames, to be hung up for the young lady's credit; and when it is allowed amongst their acquaintance that she draws in a *superior* style, the purpose of this part of her education is satisfactorily answered. We do not here speak of those few individuals who really *excel* in drawing, who have learnt something more than the common routine which is usually learnt from a drawing-master, who have acquired an agree-

able talent, not for the mere purpose of exhibiting themselves, but for the sake of the occupation it affords, and the pleasure it may give to their *friends*. We have the pleasure of knowing some who exactly answer to this description, and who must feel themselves distinct and honourable exceptions to these general observations.

From whatever cause it arises, we may observe, that after young women are settled in life, their taste for drawing and music gradually declines. For this fact we can appeal only to the recollection of individuals. We may hence form some estimate of the real value which ought to be put upon what are called accomplishments, *considered as occupations*. Hence may we also conclude, that parents do not form their judgments from the facts which they see every day in real life; or else may we not infer that they deceive themselves as to their own motives; and that amongst the reasons which make them so anxious about the accomplishments of their daughters, there are some secret motives more powerful than those which are usually openly acknowledged?

It is admitted, in the cabinet council of mothers, that some share of the value of accomplishments depends upon the demand for them in the fashionable world. “A young lady,” they say, “is nobody, and nothing, without accomplishments; they are as necessary to her as a fortune; they are indeed considered as part of her fortune, and sometimes are even found to supply the place of it. Next to beauty, they are the best tickets of admission into society which she can produce; and every body knows, that on the company she keeps depends the chance of a young woman’s settling advantageously in the world.”

To judge of what will please and attach men of superior sense and characters——we are not quite certain that these are the men who are to be considered first when we speak of a young lady’s settling *advantageously* in the world; but we will take this for granted——to judge of what will please or attach men of superior sense and characters, we must observe their actual conduct in life, and listen to their speculative opinions. Superficial accomplish-

ments do not appear to be the objects of their preference. In enumerating the perfections of his wife, or in retracing the progress of his love, does a man of sense dwell upon his mistress's skill in drawing, or dancing, or music? No. These he tells you, are extremely agreeable talents, but they could have never attached him; they are subordinate parts in her character; he is angry that you can rank them amongst her perfections; he knows that a thousand women possess these accomplishments, who have never touched his heart. He does not perhaps deny, that in *Chloe*, altogether, they have power to please, but he does not think them essential to her power.

The opinion of women, who have seen a good deal of the world, is worth attending to upon this subject; especially if we can obtain it when their passions are wholly uninterested in their decision. Whatever may be the judgment of individuals concerning the character and politics of the celebrated *Madame Roland*, her opinion as a woman of abilities, and as a woman who had seen a variety of life, will be thought deserving of attention. Her book was

written at a time when she was in daily expectation of death, when she could have no motive to conceal her real sentiments upon any subject. She gives an account of her employments in prison ; and, amongst others, mentions music and drawing.

“ I then employed myself in drawing till
“ dinner-time. I had so long been out of
“ the habit of using a pencil, that I could
“ not expect to be very dexterous ; but we
“ commonly retain the power of repeating
“ with pleasure, or at least of attempting
“ with ease, whatever we have successfully
“ practised in our youth. Therefore the
“ study of the fine arts, considered as a part
“ of female education, should be attended
“ to, much less with a view to the acquisition
“ of superior talents, than with a
“ desire to give women a taste for industry ;
“ the habit of application, and a greater
“ variety of employments ; for these assist
“ us to escape from *ennui*, the most cruel
“ disease of civilised society ; by these we
“ are preserved from the dangers of vice,
“ and even from those seductions which
“ are far more likely to lead us astray.

“ I would not make my daughter a per-

“ former.* I remember, that my mother
 “ was afraid that I should become a great
 “ musician, or that I should have devoted
 “ myself entirely to painting: she wished
 “ that I should, above all other things, love
 “ the duties of my sex; that I should be a
 “ good economist, a good mistress, as well
 “ as a good mother of a family. I wish my
 “ Eudora to be able to accompany her voice
 “ agreeably on the harp. I wish that she
 “ may play agreeably on the piano-forte;
 “ that she may know enough of drawing to
 “ feel pleasure from the sight and from the
 “ examination of the finest pictures of the
 “ great painters: that she may be able to draw
 “ a flower that happens to please her; and
 “ that she may unite in her dress, elegance
 “ and simplicity. I should wish that her
 “ talents might be such, that they should
 “ neither excite the admiration of others, nor
 “ inspire her with vanity; I should wish
 “ that she should please by the general effect
 “ of her whole character, without ever striking
 “ any body with astonishment at first sight:
 “ and that she should attach by her good

“ qualities, rather than shine by her accomplishments.”

Women cannot foresee what may be the tastes of the individuals with whom they are to pass their lives. Their own tastes should not therefore be early decided ; they should, if possible, be so educated that they may attain any talent in perfection which they may desire, or which their circumstances may render necessary. If, for instance, a woman were to marry a man who was fond of music, or who admired painting, she should be able to cultivate these talents for his amusement and her own. If he be a man of sense and feeling, he will be more pleased with the motive than with the thing that is actually done. But if it be urged, that all women cannot expect to marry men of sense and feeling ; and if we are told, that nevertheless they must look to “an advantageous establishment,” we must conclude, that men of rank and fortune are meant by that comprehensive phrase. Another set of arguments must be used to those, who speculate on their daughters’ accomplishments in this line. They have, perhaps, seen some instances of what they call success ; they have

seen some young women of their acquaintance, whose accomplishments have attracted men of fortune superior to their own; consequently, maternal tenderness is awakened, and many mothers are sanguine in their expectations of the effect of their daughters education. But they forget that every body now makes the same reflections; that parents are and have been for some years, speculating in the same line; consequently, the market is likely to be overstocked, and of course the value of the commodities must fall. Every young lady (and every young woman is now a young lady) has some pretensions to accomplishments. She draws a little; or she plays a little; or she speaks French a little. Even the blue-board boarding schools, ridiculed by Miss Allscrip in the *Heiress*, profess to perfect young ladies in some or all of these necessary parts of education. Stop at any good inn on the London roads, and you will probably find that the landlady's daughter can show you some of her own framed drawings, can play a tune upon her spinnet, or support a dialogue in French of a reasonable length, in the customary questions and answers. Now it is the practice in high-life

to undervalue, and avoid as much as possible, every thing which descends to the inferior classes of society. The dress of to-day is unfashionable to-morrow, because everybody wears it. The dress is not preferred because it is pretty or useful, but because it is the distinction of well-bred people. In the same manner accomplishments have lost much of that value which they acquired from opinion, since they have become common. They are now so common, that they cannot be considered as the distinguishing characteristics of even a gentlewoman's education. The higher classes in life, and those individuals who aim at distinction, now establish another species of monopoly, and secure to themselves a certain set of expensive masters in music, drawing, dancing, &c. They endeavour to believe, and to make others believe, that no one can be well educated without having served an apprenticeship of so many lessons under some of these privileged masters. But it is in vain that they intrench themselves, they are pursued by the intrusive vulgar. In a wealthy mercantile nation there is nothing, which can be bought for money, that will long continue to be an en-

vied distinction. The hope of attaining to that degree of eminence in the fine arts which really deserve celebrity, becomes every day more difficult to private practitioners, because the number of competitors daily increases : and it is the interest of masters to forward their pupils by every possible means. Both genius and perseverance must now be united to obtain the prize of distinction : and how seldom are they found, or kept together, in the common course of education.

Considering all these circumstances, is not there some reason to apprehend that in a few years the taste for several fashionable appendages for female education may change, and that those will consequently be treated with neglect who have no other claim to public regard than their proficiency in what may, perhaps, then be thought vulgar or obsolete accomplishments ? Our great grandmothers distinguished themselves by truly substantial ten-stitch chairs and carpets, by needle-work pictures of Solomon and the queen of Sheba. These were admirable in their day, but their day is over ; and these useful, ingenions, and laborious specimens of female talents, are consigned to the garret, or they are produced

but as curiosities, to excite wonder at the strange patience and miserable destiny of former generations; the taste for tapestry and embroidery are thus past; the long labours of the loom have ceased. Cloth-work, crape-work, chenille-work, ribbon-work, wafer-work, with a long train of *et ceteras*, have all passed away in our own memory; yet these conferred much evanescent fame, and a proportionable quantity of vain emulation. A taste for drawing or music cannot be classed with any of these trifling performances; but there are many faded drawings of the present generations, which cannot stand in competition with the glowing and faithful colours of the silk and worsted of former times; and many of the hours spent at a *stammering* harpsichord, might surely, with full as much domestic advantage, have been devoted to the embellishment of chairs and carpets. We hope that no one will so perversely misunderstand us, as to infer from these remarks, that we desire to see the revival of old tapestry work; or that we condemn the elegant accomplishments of music and drawing. We condemn only the abuse of these accomplishments; we wish that

they should be considered as domestic occupations, not as matters of competition, or of exhibition, nor yet as the means of attracting temporary admiration. We are not afraid that any, who are really conscious of having acquired accomplishments with these prudent and honourable views, should misapprehend what has been said. Mediocrity may, perhaps, attempt to misrepresent our remarks, and may endeavour to make it appear that we have attacked, and that we would discourage, every effort of female taste and ingenuity in the fine arts : we cannot, therefore, be too explicit in disclaiming such illiberal views.

We have not spoken of dancing, though it is one of the most admired of female accomplishments. This evidently is an amusement, not an occupation : it is an agreeable exercise, useful to the health, and advantageous, as it confers a certain degree of habitual ease and grace. Mr. Locke seems to think, that it gives young people confidence in themselves when they come into company, and that it is therefore expedient to teach children early to dance ; but there are so many other methods of inspiring young

people with this confidence in themselves, that it appears unnecessary to lay much stress upon this argument. If children live in good company, and see constantly people with agreeable manners, they will acquire manners which the dancing-master does not always teach; and they will easily vary their forms of politeness with the fashion of the day. Nobody comes into a room regularly as their dancing-master taught them to make their entrance; we should think a strict adherence to his lesson ridiculous and awkward in well-bred company; therefore much must be left to the discretion and taste of the pupil, after the dancing-master has made his last bow. Ease of manners is not always attained by those who have been strictly disciplined by a Vestris, because the lessons are not always practised in precisely the same circumstances in which they were learnt; this confuses and confounds the pupils, and they rather lose than gain confidence in themselves, from perceiving that they cannot immediately apply what they have been taught. But we need not expatiate upon this subject, because there are few parents of good sense, in any rank of life, who will

not perceive that their daughter's manners cannot be formed or polished by a dancing-master. We are not to consider dancing in a grave and moral light; it is an amusement much more agreeable to young people, and much better suited to them in every respect, than cards, or silent assemblies of formal visitors. It promotes cheerfulness, and prevents, in some measure, the habits of gossiping, and the love of scandal. So far we willingly agree with its most vivacious advocates, in its common eulogium. But this is not, we fear, saying enough. We see, or fancy that we see, the sober matron lay down her carefully-sorted cards upon the card-table, and with dictatorial solemnity she pronounces, "That dancing is something
 " more than an amusement; that girls must
 " learn to dance, because they must appear
 " well in public; because the young ladies
 " who dance the best are usually most *taken*
 " *notice of* in public; most admired by the
 " other sex; most likely, in short, not only
 " to have their choice of the best partner in
 " a ball-room, but sometimes of the best
 " partner for life."

With submission to maternal authority,

these arguments do not seem to be justified of late years. Girls, who dance remarkably well, are, it is true, admired in a ball-room, and followed, perhaps, by those idle, thoughtless young men, who frequent public places merely for want of something else to do. This race of beings are not particularly calculated to make good husbands in any sense of the word ; nor are they usually disposed to think of marriage in any other light than as the last desperate expedient to repair their injured fortunes. They set their wits against the sex in general, and consider themselves as in danger of being jockeyed into the matrimonial state. Some few, perhaps, who have not brought their imagination sufficiently under the command of the calculating faculty, are *caught* by beauty and accomplishments, and marry against the common rules of interest. These men are considered with pity, or with ridicule, by their companions, as dupes who have suffered themselves to be taken in : others are warned by their fate ; and the future probability of similar *errors*, of course, must be diminished. The fashionable apathy, whether real or affected, with which young men lounge in

public places, with scarcely the appearance of attention to the fair exhibitors before them, sufficiently marks the temper of the times; and if the female sex have lost any thing of the respect and esteem which ought to be paid to them in society, they can scarcely expect to regain their proper influence by concessions to the false and vitiated taste of those who combine to treat them with neglect bordering upon insolence. If the system of female education, if the system of female manners, conspire to show in the fair sex a degrading anxiety to attract worthless admiration, wealthy, or titled homage, is it surprising that every young man, who has any pretension to birth, fortune, or fashion, should consider himself as the arbiter of their fate, and the despotic judge of their merit? Women, who understand their real interests, perceive the causes of the contempt with which the sex is treated by fashionable coxcombs, and they feel some indignation at the meanness with which this contempt, tacitly or openly expressed, is endured. Women, who feel none of this indignation, and who, either from their education, or their circumstances, are solicitous to obtain only present

amusement, or what they think the permanent advantages of a fortunate alliance, will yet find themselves mistaken by persisting in their thoughtless career; they will not gain even the objects to which they aspire. How many accomplished belles run the usual round of dissipation in all public places of exhibition, tire the public eye, and, after a season or two, fade, and are forgotten. How many accomplished belles are there, who, having gained the object of their own, or of their mother's ambition, find themselves doomed to misery for life? Those unequal marriages, which are sometimes called *excellent matches*, seldom produce much happiness. And, where happiness is not, what is all the rest?

If all, or any of these reflections, should strike the heart, and convince the understanding, of an anxious, but reasonable mother, she will, probably, immediately determine upon her own conduct in the education of her daughters: she will resolve to avoid the common errors of the frivolous or the interested; she will not be influenced by the importunity of every idle acquaintance, who may talk to her of the necessity of her daugh-

ters' being taken notice of in public ; of the chances of an *advantageous* establishment, of the good fortune of Miss Y—— or Lady Angelina X——; in meeting with a coxcomb or a spendthrift for a husband ; nor will she be moved with maternal emulation when she is further told that these young ladies owed their *success* entirely to the superiority of their accomplishments : she will consider, for one moment, what is meant by the word success ; she will, perhaps, not be of opinion, that “ ’tis best repenting in a “ coach and six ;” she will, perhaps, reflect, that even the “ soft sounds” of titled grandeur lose their power to please, and “ salute the “ ear” almost unobserved. The happiness, the permanent happiness of her child, will be the first, the last object of the good and the enlightened mother : to this all her views and all her efforts will tend : and to this she will make every fashionable, every elegant accomplishment subservient.

As to the means of acquiring these accomplishments, it would be absurd, and presumptuous, to present here any vague precepts, or tedious details, upon the mode of learning drawing, dancing, and music. These can be best learned from the masters who

profess to teach them, as far as the technical part is necessary. But success will not ultimately depend upon any technical instruction that a master can give: he may direct the efforts of industry so as to save much useless labour; he may prevent his pupils from acquiring bad practical habits; he may assist, but he cannot inspire, the spirit of perseverance. A master who is not expected, or indeed allowed, to interfere in the general education of his pupils, can only diligently attend to them whilst he is giving his lessons; he has not any power, except that pernicious motive, competition, to excite them to excel; his instructions cannot be peculiarly adapted to their tempers or their understandings, because with these he is unacquainted. Now a sensible mother has it in her power to supply all these deficiencies; even if she does not herself excel in any of the accomplishments which her daughters are learning, her knowledge of their minds, her taste, her judgment, her affection, her superintending intelligence, will be of inestimable value to her children. If she has any skill in any accomplishment, she will, for the first years of her daughters' life, be undoubtedly the best person to instruct them.

By skill, we do mean superior talents, or proficiency in music or drawing ; without these, she may be able to teach all that is necessary in the early part of education. One of the best motives which a woman can have to cultivate her talents after she marries, is the hope and belief, that she may be essentially serviceable, in the instruction of her family. And that she may be essentially serviceable, let no false humility lead her to doubt. She need not be anxious for the rapid progress of her little pupils ; she need not be terrified if she see their equals in age surpass them under what she thinks more able tuition : she may securely satisfy herself, that if she but inspires her children with a desire to excel, with the habits of attention and industry, they will certainly succeed, sooner or later, in whatever it is desirable that they should learn. The exact age at which the music, dancing, or drawing-master, should begin their instructions need not be fixed. If a mother should not be so situated as to be able to procure the best masters for her daughters whilst they are yet children, she need not be in despair ; a rapid progress is made in a short time by well-educated young people ; those who have not

acquired any bad habits are easily taught : it therefore seems prudent, if the best masters cannot be procured at any given period of education, to wait patiently rather than hazard their first impressions, and the first habits which might be given by any inferior technical instruction. It is said, that the celebrated musician Timotheus, whose excellence in his art Alexander the conqueror of the world was forced to acknowledge, had the prudence to demand double *entrance-money* from every scholar who had had any other music-master.

Besides the advantage of being entirely free from other bad habits, children who are not taught by inferior masters will not contract habits of listless application. Under the eye of any indolent person, children seldom give their entire attention to what they are about. They become mere machines ; and without using their own understanding in the least, have recourse to the convenient master upon every occasion. The utmost that children in such circumstances can learn, is all the technical part of the art which the master can teach. When the master is at last dismissed, and her education completed, the pupil is left both

fatigued and helpless. “ Few have been taught to any purpose, who have not been their own teachers,” says Sir Joshua Reynolds. This reflection upon the art of teaching may perhaps be too general ; but those persons, who look back upon their education, will in many respects allow it to be just. They will perceive that they have been too much taught, and that they have learned every thing which they knew as an art, and nothing as a science. Few people have sufficient courage to recommence their own education, and for this reason few people get beyond a certain point of mediocrity. It is easy to them to practise the lessons which they have learned, if they practise them in intellectual darkness ; but if you let in upon them one ray of philosophic light, you dazzle and confound them, so that they cannot even perform their customary feats. A young man,* who had been blind from his birth, and learned to draw a cross, a circle, and a square, with great accuracy ; when he was twenty his eyes were couched, and when he could see

* V. Storia di quattro fratelli nati ciechi e guariti coll' estrazione delle cateratte. Francesco Buzzi.

perfectly well, he was desired to draw his circle and square. His new sense of seeing, so far from assisting him in this operation, was extremely troublesome to him ; though he took more pains than usual, he performed very ill: confounded by the new difficulty, he concluded that sight was useless in all operations to be performed by the hand, and he thought his eyes would be of no use to him in future. How many people find their reason as useless and troublesome to them as this young man found his eye-sight!

Whilst we are learning any mechanical operation, or whilst we are acquiring any technical art, the mind is commonly passive. In the first attempts, perhaps, we reason or invent ways of abridging our own labour, and the awkwardness of the unpractised hand is assisted by ingenuity and reflection ; but as we improve in manual dexterity, attention and ingenuity are no longer exerted ; we go on habitually without thought. Thought would probably interrupt the operation, and break the chain of associated actions. An artificer stops his hand the moment you ask him to explain what he is about: he can work and talk of indifferent objects ; but if

he reflects upon the manner in which he performs certain slight-of-hand parts of his business, it is ten to one but he cannot go on with them. A man who writes a free running-hand, goes on without thinking of the manner in which he writes; fix his attention upon the manner in which he holds his pen, or forms his letters, and he probably will not write quite so fast, or so well, as usual. When a girl first attempts to dress herself at a glass, the glass perplexes, instead of assisting her, because she thinks and reasons about every motion; but when by habit she has learned how to move her hands in obedience to the *flügel*-image,* which performs its exercise in the mirror, no farther thought is employed. Make the child observe that she moves her left hand forward when the image in the glass moves in a contrary manner, turn the child's attention to any of her own motions, and she will make mistakes as she did before her habits were formed.

Many occupations, which are generally supposed to depend upon the understanding,

* This word is sometimes by mistake spelt *fugal*-man.

and which do probably depend in the first instance upon the *understanding*, become by practice purely mechanical. This is the case in many of the imitative arts. A person unused to drawing, exerts a great deal of attention in copying any new object ; but custom soon supplies the place of thought. By custom, as a great artist* assures us, he will become able to draw the human figure tolerably well with as little effort of the mind as to trace with a pen the letters of the alphabet.

We must farther observe, that the habit of pursuing any occupation, which requires no mental exertion, induces an indolence or incapacity of intellect. Mere artists are commonly as stupid as mere artificers, and these are little more than machines.

The length of time which is required to obtain practical skill and dexterity in certain accomplishments, is one reason why there are so few people who obtain any thing more than mechanical excellence. They become the slaves of custom, and they become proud of their slavery. At first they might have

* Sir Joshua Reynolds.

considered custom as a tyrant; but when they have obeyed her for a certain time, they do her voluntary homage ever after, as to a sovereign by divine right. To prevent this species of intellectual degradation, we must in education be careful to rank mere mechanical talents below the exercise of the mental powers. Thus the ambition of young people will be directed to high objects; and all inferior qualifications may be attained without contracting the understanding. Praise children for patience, for perseverance, for industry; encourage them to reason and to invent upon all subjects, and you may direct their attention afterwards as you think proper. But if you applaud children merely for drawing a flower neatly, or copying a landscape, without exciting their ambition to any thing higher, you will never create superior talents, or a superior character. The writing and drawing-automaton performs its advertised wonders to the satisfaction of the spectators; but the machine is not "*instinct with spirit*," you cannot expect from it the design, the sketch of Raphael, or from its pen the thoughts of a Shakespeare.

It is easy to guide the hand, but who can transfuse a soul into the image?

It is not an uncommon thing to hear young people, who have been long under the tuition of masters, complain of their own want of genius. They are sensible that they have not made any great progress in any of the accomplishments, which they have endeavoured to learn; they see others, who have not perhaps had what they call such *opportunities* and *advantages* in their education, suddenly surpass them; this they attribute to natural genius, and they say to themselves in despair, “Certainly I have no
“taste for drawing, I have no genius for
“music, I have learned so many years, I
“have had so many lessons from the best
“masters, and yet here is such and such a
“one, who has had no master, who has taught
“herself, and perhaps did not begin till late
“in life, has got before me, because she has
“a natural genius for these things. She
“must have a natural taste for them, because
“she can sit whole hours at these things, for
“her own pleasure. Now I never would
“take a pencil in my hand for my own

“ choice ; and I am glad, at all events, that
 “ the time for lessons and masters is over.
 “ My education is finished, for I am of age.”

The disgust and despair, which are thus induced by an injudicious education, absolutely defeat even its own trivial purposes. So that, whatever may be the views of parents, whether they consider ornamental accomplishments as essential to their daughter's *success* in the world, or whether they value them rather as secondary objects, subordinate to her happiness ; whether they wish their daughter actually to excel in any particular accomplishment, or to have the power of excelling in any to which circumstances may direct her, it is in all cases adviseable to cultivate the general power of the pupil's understanding, instead of confining her to technical practices and precepts, under the eye of any master, who does not possess that which is the *soul* of every art.

We do not mean any illiberal attack upon masters, but in writing upon education it is necessary to examine the utility of different modes of instruction without fear of offending any *class* of men. We acknowledge, that it is seldom found that

those can communicate their knowledge the best, *who possess the most*, especially if this knowledge be that of an artist or a linguist. Before any person is properly qualified *to teach*, he must have the power of recollecting exactly how *he learned*; he must go back step by step to the point at which he began, and he must be able to conduct his pupil through the same path without impatience, or precipitation. He must not only have acquired a knowledge of the process by which his own ideas and habits were formed, but he must have extensive experience of the varieties of the human mind. He must not suppose, that the operations of intellect are carried on precisely in the same manner in all minds; he must not imagine, that there is but one method of teaching, which will suit all persons alike. The analogies which strike his own mind, the arrangement of ideas, which to him appears the most perspicuous, to his pupil may appear remote and confused. He must not attribute this to his pupil's inattention, stupidity, or obstinacy; but he must attribute it to the true causes; the different association of ideas in different minds,

the different habits of thinking, which arise from their various tempers and previous education. He must be acquainted with the habits of all tempers ; the slow, the quick, the inventive, the investigating ; and he must adapt his instructions accordingly. There is something more requisite : a master must not only know what he professes to teach of his own peculiar art or science, but he ought to know all its bearings and dependencies. He must be acquainted not only with the local topography of his own district, but he must have the whole map of human knowledge before him ; and whilst he dwells most upon his own province, he must yet be free from local prejudices, and must consider himself as a citizen of the world. Children who study geography in small separate maps, understand, perhaps the view of each country tolerably well ; but we see them quite puzzled when they are to connect these maps in their idea of the world. They do not know the relative size or situation of England or France ; they cannot find London or Paris when they look for the first time upon the globe, and every country seems to be turned up-side

down in their imagination. Young people who learn particular arts and sciences from masters who have confined their view to the boundary of each, without having given an enlarged idea of the whole, are much in the same situation with these unfortunate geographers.

The persisting to teach things separately, which ought to be taught as a whole, must prevent the progress of mental cultivation.*

The division and subdivision of different parts of education, which are monopolized as trades by the masters who profess to teach them, must tend to increase and perpetuate error. These intellectual *casts* are pernicious.

It is said that the Persians had masters to teach their children each separate virtue: one master to teach justice, another fortitude, another temperance, and so on. How these masters could preserve the boundaries of their several moral territories, it is not easy to imagine, especially if they all insisted upon independent sovereignty. There must have been some danger, surely, of

* Condillac.

their disputing with one another concerning the importance of their respective professions, like the bourgeois gentilhomme's dancing-master, music-master, master of morality, and master of philosophy, who all fell to blows to settle their pretensions, forgetful of the presence of their pupil. Masters, who are expected to teach only one thing, may be sincerely anxious for the improvement of their pupils in that particular, without being in the least interested for their general character or happiness. Thus the drawing-master has done his part, and is satisfied if he teaches his pupil to draw well; it is no concern of his what her temper may be, any more than what sort of hand she writes, or how she dances. The dancing-master, in his turn, is wholly indifferent about the young lady's progress in drawing; all he undertakes is, to teach her to dance.

We mention these circumstances to show parents, that masters, even when they do the utmost that they engage to do, cannot educate their children; they can only partially instruct them in particular arts. Parents must themselves preside over the education of their children, or must entirely

give them into the care of some person of an enlarged and philosophic mind, who can supply all the deficiencies of common masters, and who can take advantage of all the positive good that can be obtained from existing institutions. Such a preceptor or governess must possess extensive knowledge, and that superiority of mind which sees the just proportion and value of every acquisition, which is not to be overawed by authority, or dazzled by fashion. Under the eye of such persons, masters will keep precisely their proper places; they will teach all they can teach, without instilling absurd prejudices, or inspiring a spirit of vain rivalry; nor will they be suffered to continue their lessons when they have nothing more to teach.

Parents, who do not think that they have leisure, or feel that they have capacity, to take the entire direction of their children's education upon themselves, will trust this important office to a governess. The inquiry concerning the value of female accomplishments has been purposely entered into before we could speak of the choice of a governess, because the estimation in which

these are held will very much determine parents in their choice.

If what has been said of the probability of a decline in the public taste for what are usually called accomplishments: of their relative utility to the happiness of families and individuals; of the waste of time, and waste of the higher powers of the mind in acquiring them; if what has been observed on any of these points is allowed to be just, we shall have little difficulty in pursuing the same principles farther. In the choice of a governess we should not consider her fashionable accomplishments as her best recommendations; these will be only secondary objects. We shall examine with more anxiety, whether she possess a sound, discriminating, and enlarged understanding; whether her mind be free from prejudice; whether she has steadiness of temper to pursue her own plans; and, above all, whether she has that species of integrity which will justify a parent in trusting a child to her care. We shall attend to her conversation, and observe her manners, with scrupulous minuteness. Children are *imitative animals*, and they are peculiarly disposed to imitate the language, manners,

and gestures, of those with whom they live, and to whom they look up with admiration. In female education too much care cannot be taken to form all those habits in morals and in manners, which are distinguishing characteristics of amiable women. These habits must be acquired early, or they will never appear easy or graceful: they will necessarily be formed by those who see none but good models.

We have already pointed out the absolute necessity of union amongst all those who are concerned in a child's education. A governess must either rule, or obey, decidedly. If she do not agree with the child's parents in opinion, she must either know how to convince them by argument, or she must with strict integrity conform her practice to their theories. There are few parents who will choose to give up the entire care of their children to any governess; therefore there will probably be some points in which a difference of opinion will arise. A sensible woman will never submit to be treated as governesses are in some families, like the servant who was asked by his master what business he had to think: nor will a woman

of sense or temper insist upon her opinions without producing her reasons. She will thus ensure the respect and the confidence of enlightened parents.

It is the interest of parents to treat the person who educates their children with that perfect equality and kindness which will conciliate her affection, and which will at the same time preserve her influence and authority over her pupils. And it is with pleasure we observe, that the style of behaviour to governesses, in well-bred families, is much changed within these few years. A governess is no longer treated as an upper servant, or as an intermediate being between a servant and a gentlewoman; she is now treated as the friend and companion of the family, and she must, consequently, have a warm and permanent interest in its prosperity: she becomes attached to her pupils from gratitude to their parents, from sympathy, from generosity, as well as from the strict sense of duty.

In fashionable life there is, however, some danger, that parents should go into extremes in their behaviour towards their governesses: Those who disdain the idea of assuming superiority of rank and fortune, and who

desire to treat the person who educates their children as their equal, act with perfect propriety ; but if they make her their companion in all their amusements they go a step too far, and they defeat their own purposes. If a governess attends the card-table, and the assembly-room : if she is to visit and be visited, what is to become of her pupils in her absence ? They must be left to the care of servants. There are some ladies who will not accept of any invitation, in which the governess of their children is not included. This may be done from a good motive, but surely it is unreasonable ; for the very use of a governess is to supply, the mother's place in her absence. Cannot this be managed better ? Cannot the mother and governess amuse themselves at different times ? There would then be perfect equality ; the governess would be in the same society, and would be treated with the same respect, without neglecting her duty. The reward which is given to women of abilities and of unblemished reputation, who devote themselves to the superintendence of the education of young ladies in the higher ranks of life, the daughters of our affluent nobility

ought to be considerably greater than what it is at present; it ought to be such as to excite women to cultivate their talents, and their understandings, with a view to this profession. A profession we call it, for it should be considered as such; as an honourable profession, which a gentlewoman might follow without losing any degree of the estimation in which she is held by what is called *the world*. There is no employment, at present, by which a gentlewoman can maintain herself without losing something of that respect, something of that rank in society, which neither female fortitude nor male philosophy willingly foregoes. The liberal professions are open to men of small fortunes; by presenting one similar resource to women, we should give a strong motive for their moral and intellectual improvement.

Nor does it seem probable, that they should make a disgraceful or imprudent use of their increasing influence and liberty in this case, because their previous education must previously prepare them properly. The misfortune of women has usually been, to have power trusted to them before they were educated to use it prudently. To say that

preceptresses in the higher ranks of life should be liberally rewarded, is but a vague expression ; something specific should be mentioned, wherever general utility is the object. Let us observe, that many of the first dignities of the church are bestowed, and properly bestowed, upon men who have educated the highest ranks of our nobility. Those who look with an evil eye upon these promotions do not fairly estimate the *national* importance of education for the rich and powerful.—No provision can be made for women who direct the education of the daughters of our nobility, any ways equivalent to the provision made for preceptors by those who have influence in the state. A pecuniary compensation is in the power of opulent families. Three hundred a year, for twelve or fourteen years, the space of time which a preceptress must probably employ in the education of a young lady, would be a suitable compensation for her care. With this provision she would be enabled, after her pupil's education was completed, either to settle in a family of her own, or she would in the decline of life be happily independent, secure from the temptation

of marrying for money. If a few munificent and enlightened individuals set the example of liberally rewarding merit in this situation, many young women will probably appear with talents and good qualities suited to the views of the most sanguine parents. With good sense and literary tastes, a young woman might instruct herself during the first years of her pupil's childhood, and might gradually prepare herself with all the necessary knowledge; according to the principles that have been suggested, there would be no necessity for her being a *mistress of arts*, a performer in music, a paintress, a linguist, or a poetess. A general knowledge of literature is indispensable; and yet farther, she must have sufficient taste and judgment to direct the literary talents of her pupils.

With respect to the literary education of the female sex, the arguments on both sides of the question have already been stated, with all the impartiality in our power, in another place;* without obtruding a detail of the same arguments again upon the public,

* Letters for Literary Ladies, second edition.

it will be sufficient to profess the distinct opinion, which a longer consideration of the subject has yet more fully confirmed. That it will tend to the happiness of society in general, that women should have their understandings cultivated and enlarged as much as possible ; that the happiness of domestic life, the virtues and the powers of pleasing in the female sex, the yet more desirable power of attaching those worthy of their love and esteem, will be increased by the judicious cultivation of the female understanding, more than by all that modern gallantry or ancient chivalry could devise in favour of the sex. Much prudence and ability are requisite to conduct properly a young woman's literary education. Her imagination must not be raised above the taste for necessary occupations, or the numerous small, but not trifling pleasures of domestic life : her mind must be enlarged, yet the delicacy of her manners must be preserved : her knowledge must be various, and her powers of reasoning unawed by authority ; yet she must *habitually* feel that nice sense of propriety, which is at once the guard and the charm of every feminine virtue. By early caution,

unremitting, scrupulous caution in the choice of the books which are put into the hands of girls, a mother or a preceptress may fully occupy and entertain their pupils, and excite in their minds a *taste* for propriety, as well as a taste for literature. It cannot be necessary to add more than this general idea, that a mother ought to be answerable to her daughter's husband for the books her daughter reads, as well as for the company she keeps.

Those observations, which apply equally to the cultivation of the understanding both of men and of women, we do not here mean to point out; we would speak only of what may be peculiar to female education. From the study of the learned languages women by custom, fortunately for them, are exempted: of ancient literature they may, in translations which are acknowledged to be excellent, obtain a sufficient knowledge, without paying too much time and labour for this classic pleasure. Confused notions from fashionable publications, from periodical papers, and comedies, have made their way into common conversation, and thence have assumed an appearance of authority, and have been extremely disadvantageous to

female education. Sentiment and ridicule have conspired to represent reason, knowledge, and science, as unsuitable or dangerous to women ; yet at the same time wit, and superficial acquirements in literature, have been the object of admiration in society ; so that this dangerous inference has been drawn almost without our perceiving its fallacy, that superficial knowledge is more desirable in women than accurate knowledge. This principle must lead to innumerable errors ; it must produce continual contradictions in the course of education ; instead of making women more reasonable, and less presuming, it will render them at once arrogant and ignorant ; full of pretensions, incapable of application, and unfit to hear themselves convinced. Whatever young women learn, let them be taught accurately : let them know ever so little apparently, they will know much if they have learnt that little *well*. A girl who runs through a course of natural history, hears something about chemistry, has been taught something of botany, and who knows but just enough of these to make her fancy that she is well informed, is in a miserable situation, in danger of becom-

ing ridiculous, and insupportably tiresome to men of sense and science. But let a woman know any one thing completely, and she will have sufficient understanding to learn more, and to apply what she has been taught so as to interest men of generosity and genius in her favour. The knowledge of the general principles of any science is very different from superficial knowledge of the science; perhaps, from not attending to this distinction, or from not understanding it, many have failed in female education. Some attempt will be made to mark this distinction practically, when we come to speak of the cultivation of the memory, invention, and judgment. No intelligent preceptress will, it is hoped, find any difficulty in the application of the observations they may meet with in the chapters on Imagination, Sympathy and Sensibility, Vanity and Temper. The masculine pronoun, *he*, has been used for grammatical convenience, not at all because we agree with the prejudiced and uncourteous grammarian, who asserts, “that the masculine is the more worthy gender.”

CHAPTER XXI.

MEMORY AND INVENTION.

BEFORE we bestow many years of time and pains upon any object, it may be prudent to afford a few minutes previously to ascertain its precise value. Many persons have a vague idea of the great value of memory, and, without analysing their opinion, they resolve to cultivate the memories of their children, as much, and as soon as possible. So far from having determined the value of this talent, we shall find, that it will be difficult to give a popular definition of a good memory. Some people call that a good memory which retains the greatest number of ideas for the longest time. Others prefer a recollective, to a retentive memory, and value not so much the number, as the selection of facts; not so much the mass, or even the antiquity, of accumu-

lated treasure, as the power of producing current specie for immediate use.—Memory is sometimes spoken of as if it were a faculty admirable in itself, without any union with the other powers of the mind. Amongst those who allow that memory has no independent claim to regard, there are yet many who believe, that a superior degree of it is essential to the successful exercise of the higher faculties, such as judgment and invention. The degree in which it is useful to those powers, has not, however, been determined. Those who are governed in their opinions by precedent and authority, can produce many learned names, to prove that memory was held in the highest estimation amongst the great men of antiquity; it was cultivated with much anxiety in their public institutions; and in their private education. But there were many circumstances which formerly contributed to make a great memory essential to a great man. In civil and military employments, amongst the ancients, it was in a high degree requisite. Generals were expected to know by heart the names of the soldiers in their armies; demagogues, who hoped to please the peo-

ple, were expected to know the names of all their fellow citizens.* Orators, who did not speak extempore, were obliged to get their long orations by rote. Those who studied science or philosophy were obliged to cultivate their memory with incessant care, because, if they frequented the schools for instruction, they treasured up the sayings of the masters of different sects, and learned their doctrines only by oral instruction. Manuscripts were frequently got by heart by those who were eager to secure the knowledge they contained, and who had not opportunities of recurring to the originals. It is not surprising, therefore, that memory, to which so much was trusted, should have been held in such high esteem.

At the revival of literature in Europe, before the discovery of the art of printing, it was scarcely possible to make any progress in the literature of the age, without possessing a retentive memory. A man who had read a few manuscripts, and could repeat them, was a wonder and a treasure; he could travel from place to place, and live by his learning; he was a circu-

* V. Plutarch, Quintilian.

lating library to a nation, and the more books he could carry in his head the better; he was certain of an admiring audience if he could repeat what Aristotle or Saint Jerome had written; and he had far more encouragement to engrave the words of others on his memory, than to invent or judge for himself.

In the twelfth century, above six hundred scholars assembled in the forests of Champagne to hear the lectures of the learned Abeillard; they made themselves huts of the boughs of trees, and in this new academic grove were satisfied to go almost without the necessaries of life. In the specimens of Abeillard's composition, which are handed down to us, we may discover proofs of his having been vain of a surprising memory; it seems to have been the superior faculty of his mind; his six hundred pupils could carry away with them only so much of his learning as they could get by heart during his course of lectures; and he who had the best memory must have been best paid for his journey.*

* Berrington's History of the Lives of Abeillard and Heloisa, p. 173.

The art of printing, by multiplying copies so as to put them within the easy reference of all classes of people, has lowered the value of this species of retentive memory. It is better to refer to the book itself, than to the man who has read the book. Knowledge is now ready classed for use, and it is safely stored up in the great common-place books of public libraries. A man of literature need not encumber his memory with whole passages from the author he wants to quote; he need only mark down the page, and the words are safe.

Mere erudition does not in these days ensure permanent fame. The names of the Abbé de Longuerue, and of the Florentine librarian Magliabechi, excite no vivid emotions in the minds of those who have heard of them before; and there are many perhaps not illiterate persons, who would not be ashamed to own that they had never heard of them at all. Yet these men were both of them, but a few years ago, remarkable for extraordinary memory and erudition. When M. de Longuerue was a child, he was such a prodigy of memory and knowledge, that Louis the fourteenth, passing

through the Abbé's province, stopped to see and hear him. When he grew up, Paris consulted him as the oracle of learning. His erudition, says d'Alembert,* was not only prodigious, but actually terrible. Greek and Hebrew were more familiar to him than his native tongue. His memory was so well furnished with historic facts, with chronological and topographical knowledge, that upon hearing a person assert in conversation; that it would be a difficult task to write a good historical description of France;† he asserted that he could do it from memory, without consulting any books. All he asked was, to have some maps of France laid before him: these recalled to his mind the history of each province, of all the fiefs of the crown of each city, and even of each distinguished nobleman's seat in the kingdom. He wrote his folio history in a year. It was admired as a great curiosity in manuscript: but when it came to be printed, sundry gross errors appeared; he was obliged to take out seve-

* *Eloge de M. L'Abbé d'Alary.*

† *Marquis d'Argenson's Essays*, p. 385.

ral leaves in correcting the press. The edition was very expensive, and the work, at last, would have been rather more acceptable to the public, if the author had not written it from memory. Love of the wonderful must yield to esteem for the useful.

The effect which all this erudition had upon the Abbé de Longuerue's taste, judgment and imagination, is worthy of our attention. Some of his opinions speak sufficiently for our purpose. He was of opinion that the English have never done any good,* since they renounced the study of Greek and Arabic, for Geometry and Physics. He was of opinion that two antiquarian books upon Homer, viz. *Antiquitates Homerice* and *Homeri Gnomologia*, are preferable to Homer himself. He would rather have them, he declared, because with these he had all that was useful in the poet, without being obliged to go through long stories, which put him to sleep. "As for that mad-man Ariosto," said he, "I sometimes divert myself with him." One odd volume of Racine was the only French book to be found in his library. His erudition died

* D'Alembert's *Eloge* de M. d'Alary.

with him, and the world has not profited much by his surprising memory.

The librarian Magliabechi was no less famous than M. de Longuerue for his memory, and he was yet more strongly affected by the mania for books. His appetite for them was so voracious, that he acquired the name of the glutton of literature.* Before he died he had *swallowed* six large rooms full of books. Whether he had time to digest any of them we do not know, but we are sure that he wished to have done so ; for the only line of his own composition, which he has left for the instruction of posterity, is round a medal. The medal represents him sitting with a book in his hand, and with a great number of books scattered on the floor round him. The candid inscription signifies, that to become learned, it is not sufficient to read much if we read without reflection. The names of Franklin and of Shakspeare are known wherever literature is cultivated, to all who have any pretensions to science or to genius, yet they were neither of them men of extraordinary erudition, nor from their

* *Curiosities of Literature*, vol. ii. p. 145.

works should we judge that memory was their predominant faculty. It may be said, that a superior degree of memory was essential to the exercise of their judgment and invention ; that without having treasured up in his memory a variety of minute observations upon human nature, Shakspeare could never have painted the passions with so bold and just a hand ; that if Franklin had not accurately remembered his own philosophical observations, and those of others, he never would have made those discoveries which have immortalized his name. Admitting the justice of these assertions, we see that memory to great men is but a subordinate servant, a treasurer who receives, and is expected to keep faithfully whatever is committed to his care ; and not only to preserve faithfully all deposits, but to produce them at the moment they are wanted. There are substances which are said to imbibe and retain the rays of light, and to emit them only in certain situations. As long as they retain the rays, no eye regards them.

It has often been observed, that a recollective and retentive memory are seldom found united. If this were true, and that we had

our choice of either, which should we prefer? For the purposes of ostentation, perhaps the one: for utility the other. A person who could repeat from beginning to end, the whole Economy of Human Life, which he had learned in his childhood, might if we had time to sit still and listen to him, obtain our admiration for his extraordinary retentive memory; but the person who, in daily occurrences or interesting affairs, recollects at the proper time what is useful to us, obtains from our gratitude something more than vain admiration. To speak accurately, we must remark, that retentive and recollective memories are but relative terms; the recollective memory must be retentive of all that it recollects, the retentive memory cannot show itself till the moment it becomes recollective. But we value either, precisely in proportion as they are useful and agreeable.

Just at the time when philosophers were intent upon trying experiments in electricity, Dr. Heberden recollected to have seen, many years before, a small electrical stone called *tourmalin*,* in the possession of Dr. Sharpe at Cambridge. It was the only one

* Priestley on Electricity, p. 317.

known in England at that time. Dr. Heberden procured it; and several curious experiments were made and verified with it. In this instance it is obvious, that we admire the retentive, local memory of Dr. Heberden, merely because it became recollective and useful. Had the tourmalin never been wanted, it would have been a matter of indifference, whether the direction for it at Dr. Sharpe's at Cambridge had been remembered or forgotten. There was a man* who undertook, in going from Temple Bar to the farthest part of Cheapside and back again, to enumerate at his return every sign on each side of the way in its order, and to repeat them, if it should be required, either backwards or forwards. This he exactly accomplished. As a playful trial of memory, this affords us a moment's entertainment; but if we were to be serious upon the subject, we should say it was a pity that the man did not use his extraordinary memory for some better purpose. The late king of Prussia, when he intended to advance Trenck in the army, upon his first introduction gave him

* Fuller, author of the *Worthies of England*. See *Curiosities of Literature*, vol. i.

a list of the strangest names which could be picked out, to learn by rote. Trenck learned them quickly, and the king was much pleased with this instance of his memory ; but Frederick would certainly never have made such a trial of the abilities of Voltaire.

We cannot always foresee what facts may be useful, and what may be useless to us ; otherwise the cultivation of the memory might be conducted by unerring rules. In the common business of life, people regulate their memories by the circumstances in which they happen to be placed. A clerk in a counting-house, by practice, learns to remember the circumstances, affairs, and names of numerous merchants, of his master's customers, the places of their abode, and perhaps, something of their peculiar humours and manners. A fine lady remembers her visiting list, and perhaps the dresses and partners of every couple at a crowded ball ; she finds all these particulars a useful supply for daily conversation, she therefore remembers them with care. An amateur, who is ambitious to shine in the society of literary men, collects literary anecdotes, and retails them whenever occasion permits. Men of

sense, who cultivate their memories for useful purposes, are not obliged to treasure up heterogeneous facts, by reducing particulars to general principles, and by connecting them with proper associations, they enjoy all the real advantages, whilst they are exempt from the labour of accumulation.

Mr. Stewart has with so much ability pointed out the effects of systematic arrangement, of writing, reading, and the use of technical contrivances in the cultivation of the memory, that it would be a presumptuous and unnecessary attempt to expatiate in other words upon the same subject. It may not be useless, however, to repeat a few of his observations, because in considering what farther improvement may be made, it is always essential to have fully in our view what is already known.

Philosophic arrangement assists the memory by classing, under a few general principles, a number of apparently dissimilar and unconnected particulars. The habit, for instance, of attending to the connexion of cause and effect, presents a multitude of interesting analogies to the minds of men of science, which escape other persons; the

vulgar feel no pleasure in contemplating objects that appear remote from common life : and they find it extremely difficult to remember observations and reasonings, which are foreign to their customary course of associated ideas. Even literary and ingenious people, when they begin to learn any art or science, usually complain that their memory is not able to retain all the terms and ideas which pour in upon them with perplexing rapidity. In time, this difficulty is conquered, not so much by the strength of the memory as by the exercise of judgment : they learn to distinguish and select the material terms, facts, and arguments, from those that are subordinate, and they class them under general heads, to relieve the memory from all superfluous labour.

In all studies there is some prevalent, associating principle, which gradually becomes familiar to our minds, but which we do not immediately discover in our first attempts. In poetry, resemblance ; in philosophy, cause and effect ; in mathematics, demonstrations continually recur ; and, therefore, each is expected by persons who have been used to these respective studies.

The habit of committing our knowledge to writing assists the memory, because in writing we detain certain ideas long enough in our view to perceive all their relations; we use fixed and abbreviated signs for all our thoughts; with the assistance of these we can prevent confusion in our reasonings. We can without fatigue, by the help of words, letters, figures, or algebraic signs, go through a variety of mental processes, and solve many difficult problems, which, without such assistance, must have been too extensive for our capacities.

If our books be well chosen, and if we read with discrimination and attention, reading will improve the memory, because as it increases our knowledge, it increases our interest in every new discovery, and in every new combination of ideas.

We agree entirely with Mr. Stewart in his observations upon technical helps to the memory; they are hurtful to the understanding, because they break the general habits of philosophic order in the mind. There is no connexion of ideas between the memorial lines, for instance, in Grey's *Memoria Technica*, the history of the kings, or emperors,

and the dates that we wish to remember. However, it may be advantageous in education to use such contrivances to assist our pupils in remembering those technical parts of knowledge which are sometimes valued above their worth in society.

The facts upon which the principles of any science are founded should never be learnt by rote in a technical manner. But the names and the dates of the reigns of a number of kings and emperors if they must be remembered by children, should be learnt in the manner which may give the least trouble.*

It is commonly asserted that our memory is to be improved by exercise: exercise may be of different kinds, and we must determine what sort is best. Repetition is found to fix words, and sometimes ideas, strongly in the mind; the words of the burthen of a song, which we have frequently heard, are easily and long remembered. When we want to get any thing by rote, we repeat it over and over again, till the sounds seem to follow one another habitually, and then we say we have

* V. Chapter on Books and on Geography.

them perfectly by rote.* The regular recurrence of sounds at stated intervals, much aids us. In poetry the rhymes, the cadence, the alliteration, the peculiar structure of the poet's lines, assist us. All these are mechanical helps to the memory. To some people repetition seems much more agreeable than to others; but it may be doubted whether a facility and propensity to repetition be favourable to rational memory. Whilst we repeat, we exclude all thought from the mind; we form a habit of saying certain sounds in a certain order; but if this habit be afterwards broken by any trifling external circumstances, we lose all our labour. We have no means of recollecting what we have learned in this manner. Once gone it is gone for ever. It depends but upon one principle of association. Those who exert ingenuity as well as memory in learning by heart, may not perhaps associate sounds with so much expedition, but they will have the power of recollection in a greater degree; they will have more chances in their favour, besides the great power of voluntary exertion: a

* Dr. Darwin. *Zoonomia*

power which few passive repeaters ever possess. The following lines are easily learned :

- “ Haste, then, ye spirits; to your charge repair ;
- “ The fluttering fan be Zephyretta’s care ;
- “ The drops to thee, Brillante, we consign,
- “ And, Momentilla, let the watch be thine ;
- “ Do thou, Crispissa, tend her favourite lock :
- “ Ariel himself shall be the guard of Shock.”

To a person who merely learned the sounds in these lines by rote, without knowing the sense of the words, all the advantage of the appropriated names and offices of the sylphs would be lost. No one, who has any sense of propriety, can call these sylphs by wrong names, or put them out of their places. Momentilla and the watch, Zephyretta and the fan, Crispissa and the lock of hair, Brillante and the diamond drops, are so intimately associated, that they necessarily recur together in the memory. The following celebrated lines on envy, some people will find easy, and others difficult, to learn by heart :

- “ Envy will merit, as its shade, pursue ;
- “ But, like a shadow, proves the substance true ;
- “ For envy’d wit, like Sol eclips’d, makes known
- “ Th’ opposing body’s grossness, not its own.
- “ When first that sun too powerful beams displays,
- “ It draws up vapour, which obscures its rays :
- “ But e’en those clouds at last adorn its way,
- “ Reflect new glories, and augment the day.”

The flow of these lines is not particularly easy ; those who trust merely to the power of reiteration in getting them by rote will find the task difficult : those who seize the ideas will necessarily recollect their order, and the sense will conduct them to their proper places with certainty ; they cannot, for instance, make the clouds adorn the sun's rays before the sun's powerful beams have drawn up the vapours. This fixes the place of the last four lines. The simile of merit and the sun, and envy and the clouds, keeps each idea in its order ; if any one escapes, it is easily missed, and easily recalled.

We seldom meet with those who can give us an accurate account of their own thoughts ; it is, therefore, difficult to tell the different ways in which different people manage their memory.

We judge by the effects frequently, that causes are the same, which sometimes are entirely different. Thus, we, in common conversation, should say, that two people had an equally good memory, who could repeat with equal exactness any thing which they had heard or read. But in their methods of remembering, these persons might differ essentially ; the one might have exert-

ed much more judgment and ingenuity in the conduct of his memory than the other, and might thus have not only fatigued himself less, but might have improved his understanding, whilst the other learned merely by rote. When Dr. Johnson reported the parliamentary debates for the Gentleman's Magazine, his judgment, his habit of attending to the order in which ideas follow one another in reasoning, his previous knowledge of the characters and style of the different speakers, must considerably have assisted his memory. His taste for literary composition must have shown him instantly where any argument or allusion was misplaced. A connecting phrase, or a link in a chain of reasoning, is missed as readily by a person used to writing and argument, as a word in a line of poetry is missed by a poetic ear. If any thing has escaped the memory of persons who remember, by general classification, they are not only, by their art, able to discover that something is missing, but they have a general direction where to find it; they know to what class of ideas it must belong; they can hunt from generals to particulars, till they are sure at last of

tracing and detecting the deserter; they have certain signs by which they know the object of which they are in search; and they trust with more certainty to these characteristics than to the mere vague recollection of having seen it before. We feel disposed to trust the memory of those who can give us some reason for what they remember. If they can prove to us that their assertion could not, consistently with other facts, be false, we admit the assertion into the rank of facts, and their judgment thus goes surety for their memory.

In the common mode of education great exactness of repetition is required from pupils. This seems to be made a matter of too much importance. There are circumstances in life, in which this talent is useful, but its utility perhaps we shall find, upon examination, is overrated.

In giving evidence of words, dates, and facts, in a court of justice, the utmost precision is requisite. The property, lives, and characters, of individuals, depend upon this precision.

But we must observe, that after long detailed evidence has been given by a number

of witnesses, an advocate separates the material from the immaterial circumstances, and the judge in his charge again compresses the arguments of the counsel, so that much of what has been said during the trial might as well have been omitted. All these superfluous ideas were *remembered* to no purpose. An evidence sometimes, if he be permitted, would tell not only all that he remembers of the circumstances about which he is examined, but also a number of other circumstances, which are casually associated with these in his memory. An able advocate rejects by a quickness of judgment which appears like intuition, all that is irrelevant to his argument and his cause; and it is by this selection that *his* memory, in the evidence perhaps of twenty different people, is able to retain all that is useful. When this heterogeneous mass of evidence is classed by his perspicuous arrangement, his audience feel no difficulty either in understanding or recollecting all which had before appeared confused. Thus the exercise of the judgment saves much of the labour of memory; labour which is not merely unnecessary, but hurtful, to our understanding.

In making observations upon subjects which are new to us, we must be content to use our memory unassisted at first by our reason; we must treasure up the ore and rubbish together, because we cannot immediately distinguish them from each other. But the sooner we can separate them the better. In the beginning of all experimental sciences, a number of useless particulars are recorded, because they are not known to be useless; when from comparing these a few general principles are discovered, the memory is immediately relieved, the judgment and inventive faculty have power and liberty to work, and then a rapid progress and great discoveries are made. It is the misfortune of those who first cultivate new sciences, that their memory is overloaded; but if those who succeed to them submit to the same senseless drudgery, it is not their misfortune, but their fault. Let us look over the history of those who have made discoveries and inventions, we shall perceive, that it has been by rejecting useless ideas that they have first cleared their way to truth. Dr. Priestley's *Histories of Vision and of Electricity* are as useful when we consider them as histories of the human

mind, as when we read them as histories of science. Dr. P. has published a catalogue of books,* from which he gathered his materials. The pain, he tells us, that it cost him to compress and abridge the accounts which ingenious men have given of their own experiments, teach us how much our progress in real knowledge depends upon rejecting all that is superfluous. When Simonides offered to teach Themistocles the art of memory, Themistocles answered, "Rather teach me the art of forgetting: "for I find that I remember much that I "had better forget, and forget" (*consequently*) "some things which I wish to remember."

When any discovery or invention is completed, we are frequently astonished at its obvious simplicity. The ideas necessary to the discovery are seldom so numerous as to fatigue our memory. Memory seems to have been useful to inventors only as it presented a few ideas in a certain happy connexion, as it presented them faithfully and distinctly to view in the proper moment.

* At the end of the History of Vision.

If we wish for examples of the *conduct* of the understanding, we need only look into Dr. Franklin's works. He is so free from all affectation, he lays his mind so fairly before us, that he is perhaps the best example we can select. Those who are used to look at objects in a microscope, say, that full as much depends upon the objects being well prepared for inspection, as upon the attention of the observer, or the excellence of the glass.

The first thing that strikes us, in looking over Doctor Franklin's works, is, the variety of his observations upon different subjects. We might imagine, that a very tenacious and powerful memory was necessary to register all these ; but Doctor Franklin informs us, that it was his constant practice to note down every hint as it occurred to him : he urges his friends to do the same ; he observes, that there is scarcely a day passes without our hearing or seeing something which, if properly attended to, might lead to useful discoveries. By thus committing his ideas to writing, his mind was left at liberty *to think*. No extraordinary effort of memory was, even upon the great-

est occasions, requisite. A friend wrote to him to inquire how he was led to his great discovery of the identity of lightning and electricity; and how he first came to think of drawing down lightning from the clouds. Dr. Franklin replies, that he could not answer better than by giving an extract from the minutes he used to keep of the experiments he made, with memorandums of such as he purposed to make, the reasons for making them, and the observations that rose upon them. By this extract, says Dr. Franklin, you will see that the thought was not so much *an out of the way one*, but that it might have occurred to any electrician.*

. When the ideas are arranged in clear order, as we see them in this note, the ana-

* "Nov. 7, 1749. Electrical fluid agrees with lightning
 "in these particulars: 1. Giving light. 2. Colour of the
 "light. 3. Crooked direction. 4. Swift motion. 5. Being
 "conducted by metals. 6. Crack or noise in exploding.
 "7. Subsisting in water or ice. 8. Rending bodies it passes
 "through. 9. Destroying animals. 10. Melting metals,
 "11. Firing inflammable substances. 12. Sulphurous
 "smell. The electric fluid is attracted by points. We do
 "not know whether this property is in lightning. But since
 "they agree in all the particulars wherein we can already
 "compare them, is it not probable, they agree likewise in
 "this? Let the experiment be made."

logy or induction to which Dr. Franklin was led appears easy. Why then had it never been made by any other person? Numbers of ingenious men were at this time intent upon electricity. The ideas which were necessary to this discovery were not numerous or complicated. We may remark, that one analogy connecting these observations together, they are more easily recollected; and their being written down for a particular purpose, on which Dr. Franklin's mind was intent, must have made it still easier to him to retain them.

The degree of memory he was forced to employ is thus reduced to a portion in which few people are defective. Now, let us suppose, that Dr. Franklin, at the time he wrote his memorandum, had fully in his recollection every previous experiment that had ever been tried on electricity; and not only these, but the theories, names, ages, and private history, of all the men who had tried these experiments; of what advantage would this have been to him? He must have excluded all these impertinent ideas successively as they rose before him, and he must have selected the fifteen useful observations, which we have mentioned, from this trou-

blesome multitude. The chance in such a selection would have been against him ; the time employed in the examination and rejection of all the unnecessary recollections would have been absolutely wasted.

We must wish that it were in our power, when we make observations upon nature, or when we read the reflections of others, to arrange our thoughts so as to be ready when we want to reason or invent. When cards are dealt to us, we can sort our hand according to the known probabilities of the game, and a new arrangement is easily made when we hear what is trumps.

In collecting and sorting observations, Dr. Franklin particularly excelled ; therefore we may safely continue to take him for our example. Wherever he happened to be, in a boat, in a mine, in a printer's shop, in a crowded city, or in the country, in Europe or America, he displays the same activity of observation. When any thing, however trifling, struck him, which he could not account for, he never rested till he had traced the effect to its cause. Thus, after having made one remark, he had fresh motives to collect facts, either to confirm or

refute an hypothesis: his observations tending consequently to some determinate purpose, they were arranged, in the moment they were made, in the most commodious manner, both for his memory and invention; they were arranged either according to their obvious analogies, or their relation to each other as cause and effect. He had two useful methods of judging of the value of his own ideas; he either considered how they could be immediately applied to practical improvements in the arts, or how they could lead to the solution of any of the great problems in science. Here we must again observe, that judgment saved the labour of memory. A person who sets about to collect facts at random, is little better than a magpie, who picks up and lays by any odd bits of money he can light upon without knowing their use.

Miscellaneous observations which are made by those who have no philosophy may accidentally lead to something useful; but here we admire the good fortune, and not the genius, of the individuals who make such discoveries: these are prizes drawn from the lottery of science, which ought not to seduce

us from the paths of sober industry. How long may an observation fortunately made, continue to be useless to mankind, merely because it has not been reasoned upon ! The trifling observation, that a straight stick appears bent in water, was made many hundred years before the reason of that appearance was discovered ! The invention of the telescope might have been made by any person who could have pursued this slight observation through all its consequences.

Having now defined, or rather described what we mean by *a good memory*, we may consider how the memory should be cultivated. In children, as well as in men, the strength of that habit, or perhaps of that power of the mind which associates ideas together, varies considerably. It is probable, that this difference may depend sometimes upon organization. A child who is born with any defect in his eyes cannot possibly have the same pleasure in objects of sight, which those enjoy who have strong eyes : ideas associated with these external objects are therefore not associated with pleasure, and, consequently, they are not recollected with any sensations of pleasure. An ingenious

writer* supposes, that all the difference of capacity amongst men ultimately depends on their original power of feeling pleasure or pain, and their consequent different habits of attention.

When there is any defect in a child's organization, we must have recourse to physics and not to metaphysics ; but even amongst children, who are apparently in the full possession of all their senses, we see very different degrees of vivacity : those who have most vivacity seldom take delight in repeating their ideas ; they are more pleased with novelty than prone to habit. Those, on the contrary, who are deficient in vivacity, are much disposed to the easy, indolent pleasure of repetition ; it costs them less exertion to say or do the same thing over again, than to attempt any thing new ; they are uniformly good subjects to habit, because novelty has no charms to seduce their attention.

The education of the memory in these two classes of children ought not to be the same.—Those who are disposed to repetition should not be indulged in it, because it will increase their indolence ; they should be ex-

* Helvetius, " Sur l'Esprit."

cited by praise, by example, by sympathy, and by all the strongest motives that we can employ. Their interest in every thing around them must by all means be increased: when they show eagerness about any thing, no matter what it is, we may then exercise their memory upon that subject with some hopes of success. It is of importance that they should succeed in their first trials, otherwise they will be discouraged from repeating their attempts, and they will distrust their own memory in future. The fear of not remembering will occupy, and agitate, and weaken their minds: they should, therefore, be animated by hope. If they fail, at all events let them not be reproached; the mortification they naturally feel is sufficient; nor should they be left to dwell upon their disappointment; they should have a fresh and easier trial given to them, that they may recover their own self-complacency as expeditiously as possible. It may be said, that there are children of such a sluggish temperament, that they feel no pleasure in success and no mortification in perceiving their own mental deficiencies. There are few children of this description, scarcely any, perhaps.

whose defects have not been increased by education. Exertion has been made so painful to them, that at length they have sunk into apathy, or submitted in despair to the eternal punishment of shame.

The mistaken notion, that the memory must be exercised only in books, has been often fatal to the pupils of literary people. We remember best those things which interest us most ; which are useful to us in conversation : in our daily business or amusement. So do children. On these things we should exercise their memory. Tell a boy who has lost his top, to remember at such a particular time to put you in mind of it, and if he does, that you will give him another, he will probably remember your requests after this, better than you will yourself. Affectionate children will easily extend their recollective memories in the service of their friends and companions. “ Put me in mind to give your friend what he asked for, and I will give it to him if you remember it at the right time.” It will be best to manage these affairs, so that convenience and not caprice, shall appear to be your motive for the requests. The time and place

should be precisely fixed, and something should be chosen which is likely to recall your request at the appointed time. If you say, put me in mind of such a thing the moment the cloth is taken away after dinner ; or as soon as candles are brought into the room ; or when I go by such a shop in our walk this evening : here are things mentioned which will much assist the young remembrancer : the moment the cloth is taken away, or the candles come, he will recollect, from association, that something is to be done, that *he* has something to do ; and presently he will make out what that something is.

A good memory for business depends upon local, well-arranged associations. The man of business makes an artificial memory for himself out of the trivial occurrences of the day ; and the hours as they pass recall their respective occupations. Children can acquire these habits very early in their education ; they are eager to give their companions an account of any thing they have seen or heard ; their tutors should become their companions, and encourage them, by sympathy, to address these narrations to

them. Children who forget their lessons in chronology, and their pence-tables, can relate with perfect accuracy any circumstances which have interested themselves. This shows that there is no deficiency in their capacity. Every one, who has had any experience of the pleasure of talking, knows how intimately it is connected with the pleasure of being listened to. The auditors, consequently, possess supreme power over narrative childhood, without using any artifice, by simply showing attention to well arranged, and well recollected narratives; and ceasing to attend when the young orator's memory and story become confused, he will naturally be excited to arrange his ideas. The order of *time* is the first and earliest principle of association to help the memory. This, till young people acquire the ideas of cause and effect, will be their favourite mode of arrangement.' Things that happen at the same time; things that are said, thoughts that have occurred, at the same time, will recur to the mind together. We may observe, that ill-educated people continue through life to remember things by this single association; and, conse-

quently, there is an heterogeneous collection of ideas in their mind, which have no rational connexion with each other; crowds which have accidentally met, and are forced to live for ever together.

A vulgar evidence, when he is examined about his memory of a particular fact, gives, as a reason for his remembering it, a relation of a number of other circumstances, which he tells you happened at the same time; or he calls to witness any animate or inanimate objects, which he happened to see at the same time. All these things are so joined with the principal fact in his mind, that his remembering them distinctly, seems to him, and he expects will seem to others, demonstration of the truth and accuracy of his principal assertion. When a lawyer tells him he has nothing to do with these ideas, he is immediately at a stand in his narrative; he can recollect nothing, he is sure of nothing; he has no reason to give for his belief, unless he may say that it was Michaelmas-day when such a thing happened, that he had a goose for dinner that day, or that he had a new wig. Those who have more enlarged minds, seldom produce these strange reasons

for remembering facts. Indeed, no one can reason clearly, whose memory has these foolish habits; the ill-matched ideas are inseparably joined, and they imagine there is some natural connexion between them. Hence arise those obstinate prejudices which no arguments can vanquish.

To prevent children from arguing ill, we must therefore take care, in exercising their memory, to discourage them in this method of proving, that they remember one thing by telling us a number of others which happened at the same time; rather let them be excited to bring their reasoning faculty into play in support of their memory. Suppose, for instance, that a child has mislaid his hat, and was trying to recollect where he had put it. He first may recollect, from the association of time, that he had the hat the last time he went out; but when he wants to recollect when that time was, he had better go back, if he can, to his motive for going out: this one idea will bring a number of others in right order into his mind. He went out, suppose, to fetch his kite, which he was afraid would be wetted by a shower of rain; then the boy recollects that his hat must

have been wetted by the same rain, and that when he came in, instead of hanging it up in its usual place, it was put before the fire to be dried. What fire? is the next question, &c.

Such an instance as this may appear very trivial ; but children, whose minds are well managed about trifles, will retain good habits when they are to think about matters of consequence. By exercising the memory in this manner about things, instead of about books and lessons, we shall not disgust and tire our pupils, nor shall we give the false notion, that all knowledge is acquired by reading.

Long before children read fluently for their own amusement, they like to hear others read aloud to them, because they have then the entertainment without the labour. We may exercise their memory by asking for an account of what they have heard. But let them never be required to repeat in the words of the book, or even to preserve the same arrangement ; let them speak in words of their own, and arrange their ideas to their own plan ; this will exercise at once their judgment, invention, and memory.

“ Try if you can explain to me what I “ have just been explaining to you,” a sensible tutor will frequently say to his pupils ; and he will suffer them to explain in a different manner from himself ; he will only require them to remember what is essential to the explanation. In such repetitions as these the mind is active, therefore it will strengthen and improve.

Children are all, more or less, pleased with the perception of resemblances and of analogy. This propensity assists us much in the cultivation of the memory ; but it must be managed with discretion, or it will injure the other powers of the understanding. There is in some minds a futile love of tracing analogies, which leads to superstition, to false reasoning, and false taste. The quick perception of resemblances is in other minds productive of wit, poetic genius, and scientific invention. The difference between these two classes depends upon this, the one has more judgment, and more the habit of using it than the other. Children who are pleased by trifling coincidences, by allusions and similitudes, should be taught with great care to reason : when once

they perceive the pleasure of demonstration, they will not be contented with the inaccuracy of common analogies. A tutor is often tempted to teach pupils who are fond of allusions by means of them, because he finds that they remember well whatever suits their taste for resemblances. By following the real analogies between different arts and sciences, and making use of the knowledge children have on one subject to illustrate another, we may at once amuse their fancy and cultivate their memory with advantage. Ideas laid up in this manner will recur in the same order, and will be ready for further use. When two ideas are remembered by their mutual connexion, surely it is best that they should both of them be substantially useful; and not that one should attend merely to answer for the appearance of the other.

As men readily remember those things which are every day useful to them in business, what relates to their amusements, or to their favourite tastes in arts, sciences, or in literature; so children find no difficulty in remembering every thing which mixes daily with their little pleasures. They value

knowledge, which is *useful* and *agreeable* to them, as highly as we do ; but they consider only the present, and we take the future into our estimate. Children feel no interest in half the things that are committed, with the most solemn recommendations, to the care of their memory. It is in vain to tell them, " You must remember *such a thing*, because it will be useful to you " when you grow up to be a man." The child feels like a child, and has no idea of what he may feel when he grows up to be a man. He tries to remember what he is desired, perhaps, because he wishes to please his wiser friends ; but if the ideas are remote from his every-day business, if nothing recall them but voluntary exertion, and if he be obliged to abstract his little soul from every thing it holds dear before he can recollect his lessons, they will have no hold upon his memory ; he will feel that recollection is too operose, and he will enjoy none of the " pleasures of memory."

To induce children to exercise their memory, we must put them in situations where they may be immediately rewarded for their exertion : we must create an interest in their

minds; nothing uninteresting is long remembered. In a large and literary family it will not be difficult to invent occupations for children, which may exercise all their faculties. Even the conversation of such a family will create in their minds a desire for knowledge; what they hear will recall to their memory what they read; and if they are encouraged to take a reasonable share in conversation, they will acquire the habit of listening to every thing that others say. By permitting children to talk freely of what they read, we are more likely to improve their memory for books, than by exacting from them formal repetitions of lessons.

Dr. Johnson, who is said to have had an uncommonly good memory, tells us, that when he was a boy, he used, after he had acquired any fresh knowledge from his books, to run and tell it to an old woman of whom he was very fond. This exercise was so agreeable to him, that it imprinted what he read upon his memory.

La Gaucherie, one of the preceptors of Henry IV, having found that he had to do with a young prince of an impatient mind, and active genius, little suited to sedentary

studies, instead of compelling his pupil to read, taught him by means of conversation : anecdotes of heroes, and the wise sayings of ancient philosophers were thus imprinted upon the mind of this prince. It is said, that Henry IV. applied in his subsequent life all the knowledge he had acquired in this manner so happily, that learned men were surprised at his memory.*

By these observations we by no means would insinuate, that application to books is unnecessary. We are sensible that accurate knowledge upon any subject cannot be acquired by superficial conversation, that it can be obtained only by patient application. But we mean to point out, that an early taste for literature may be excited in children by conversation, and that their memory should be first cultivated in the manner which will give them the least pain. When there is motive for application, and when habits of industry have been gradually acquired, we may securely trust, that our pupils will complete their own education. Nor should we have reason to fear, that

* See Preface to *l'Esprit des Romains considéré*.

those who have a good memory for all other things, should not be able to retain all that is worth remembering in books. Children should never be praised for merely remembering exactly what they read, they should be praised for selecting with good sense what is worth their attention, and for applying what they remember to useful purposes.

We have observed how much the habit of inventing increases the wish for knowledge, and increases the interest men take in a number of ideas which are indifferent to uncultivated and indolent people. It is the same with children. Children who invent, exercise their memory with pleasure, from the immediate sense of utility and success. A piece of knowledge, which they lay by in their minds with the hopes of making use of in some future invention, they have more motives for remembering, than what they merely learn by rote, because they are commanded to do so by the voice of authority.

A recollective memory of books appears early in children who are not overwhelmed with them; if the impressions made upon

their minds be distinct, they will recur with pleasure to the memory when similar ideas are presented.

July 1796. S—— heard his father read Sir Brook Boothby's excellent epitaph upon Algernon Sidney; the following lines pleased the boy particularly :

“ Approach, contemplate this immortal name ;

“ Swear on this shrine to emulate his fame :

“ To dare, like him, e'en to thy latest breath,

“ Contemning chains, and poverty, and death.”

S——'s father asked him why he liked these lines, and whether they put him in mind of any thing that he had heard before : S—— said, “ It puts me in mind of Hamilcar's making his son Hannibal swear
“ to hate the Romans, and love his country.
“ men eternally. But I like *this* much
“ better. I think it was exceedingly foolish
“ and wrong of Hamilcar to make his son
“ swear always to hate the Romans.”

Latin Lessons are usually so very disagreeable to boys, that they seldom are pleased with any allusion to them ; but by good management in a tutor, even these lessons may be associated with agreeable

ideaæ. Boys should be encouraged to talk and think about what they learn in Latin, as well as what they read in English ; they should be allowed to judge of the characters described in ancient authors, to compare them with our present ideas of excellence, and thus to make some use of their learning. It will then be not merely engraved upon their memory in the form of lessons, it will be mingled with their notions of life and manners ; it will occur to them when they converse, and when they act ; they will possess the admired talent for classical allusion, as well as all the solid advantages of an unprejudiced judgment. It is not enough that gentlemen should be masters of the learned languages, they must know how to produce their knowledge without pedantry or affectation. The memory may in vain be stored with classical precedents, unless these can be brought into use in speaking or writing without the parade of dull citation, or formal introduction. “ Sir,” said Dr. Johnson, to some prosing tormentor, “ I would rather a man would knock me down, than begin to talk to me of the Punic wars.” A public speaker, who rises in the House of

Commons, with pedantry propense to quote Latin or Greek, is coughed or laughed down; but the beautiful, unpremeditated, classical allusions of Burke or Sheridan, sometimes conveyed in a single word, seize the imagination irresistibly.

Since we perceive, that memory is chiefly useful as it furnishes materials for invention, and that invention can greatly abridge the mere labour of accumulation, we must examine how the inventive faculty can be properly exercised. The vague precept, of cultivating the memory and invention of young people at the same time, will not inform parents how this is to be accomplished; we trust, therefore, that we may be permitted, contrary to the custom of didactic writers, to illustrate a general precept by a few examples; and we take these examples from real life, because we apprehend that fictions, however ingenious, will never advance the science of education so much as simple experiments.

No elaborate theory of invention shall here alarm parents. It is a mistake, to suppose that the inventive faculty can be employed only on important subjects; it can

be exercised in the most trifling circumstances of domestic life. Scarcely any family can be so unfortunately situated, that they may not employ the ingenuity of their children without violent exertion, or any grand apparatus. Let us only make use of the circumstances which happen every hour. Children are interested in every thing that is going forward. Building, or planting, or conversation, or reading; they attend to every thing, and from every thing might they, with a little assistance, obtain instruction. Let their useful curiosity be encouraged; let them make a part of the general society of the family, instead of being treated as if they had neither senses nor understanding. When any thing is to be done, let them be asked to invent the best way of doing it. When they see that their invention becomes immediately useful, they will take pleasure in exerting themselves.

June 4th, 1796. A lady, who had been ruling pencil-lines for a considerable time, complained of its being a tiresome operation, and she wished that a quick and easy way of doing it could be invented. Somebody present said they had seen pens for

ruling music-books, which ruled four lines at a time; and it was asked, whether a leaden rake could not be made to rule a sheet of paper at once.

Mr. — said, that he thought such a pencil would not rule well; and he called S——, (the same boy we mentioned before) and asked him if he could invent any method of doing the business better. S—— took about a quarter of an hour to consider; and he then described a little machine for ruling a sheet of paper at a single stroke, which his father executed for him. It succeeded well, and this success was the best reward he could have.

June 8th, 1796. Mr. ——— was balancing a pair of scales very exactly, in which he was going to weigh some opium; this led to a conversation upon scales and weighing. Some one said, that the dealers in diamonds must have very exact scales, as the difference of a grain makes such a great difference in their value. S—— was very attentive to this conversation. M—— told him, that jewellers always, if they can, buy diamonds when the air is light, and sell them when it is heavy. S—— did not under-

stand the reason of this, till his father explained to him the general principles of hydrostatics, and showed him a few experiments with bodies of different specific gravity ; these experiments were distinctly understood by every body present. The boy then observed, that it was not fair of the jewellers to buy and sell in this manner : they should not, said he, use *these* weights. Diamonds should be the weights. Diamonds should be weighed against diamonds.

November, 1795. One day after dinner, the candles had been left for some time without being snuffed ; and Mr. ——— said he wished candles could be made which would not require snuffing.

Mrs. ——— thought of cutting the wick into several pieces before it was put into the candle, that so, when it burned down to the divisions, the wick might fall off. M—— thought that the wick might be tied tight round at intervals, before it was put into the candle ; that when it burnt down to the places where it was tied, it would snap off ; but Mr. ——— objected, that the candle would most likely go out when it had burned down to her knots. It was then

proposed, to send a stream of oxygen through the candle instead of a wick. M—— asked if some substance might not be used for wicks which should burn into powder and fly off, or sublime. Mr. —— smiled at this, and said, “ *Some substance? some kind of air; some chemical mixture!* A person ignorant of chemistry always talks of it as an ignorant person in mechanics always says, ‘ Oh! you can do it somehow with a spring.’ ”

As the company could not immediately discover any way of making candles which should not require to be snuffed, they proceeded to invent ways of putting out a candle at a certain time without hands. The younger part of the company had hopes of solving this problem, and every eye was attentively fixed upon the candle.

“ How would you put it out, S——?” said Mr. ——. S—— said, that if a weight, a very little lighter than the extinguisher, were tied to a string, and if the string were put over a pulley, and if *the* extinguisher were tied to the other end of the string, and the candle put exactly under the extinguisher; the extinguisher would move

very, very gently down, and at last put out the candle.

Mr. —— observed, that whilst it was putting out the candle there would be a disagreeable smell, because the extinguisher would be a considerable time moving *very, very gently down* over the candle, after the candle had begun to go out.

C—— (a girl of twelve years old) spoke next. “ I would tie an extinguisher to one
“ end of a thread. I would put this string
“ through a pulley fastened to the ceiling ;
“ the other end of this string should be
“ fastened to the middle of another thread,
“ which should be strained between two
“ posts set upright on each side of the
“ candle, so as that the latter string may
“ lean against the candle at any distance
“ *you want* below the flame. When the
“ candle burns down to this string, it will
“ burn it in two, and the extinguisher will
“ drop upon the candle.”

This is the exact description of the *weaver's alarm*, mentioned in the Philosophical Transactions, which C—— had never seen or heard of.

Mr. —— now showed us the patent ex-

tinguisher, which was much approved of by all the rival inventors.

It is very useful to give children problems which have already been solved, because they can immediately compare their own imperfect ideas with successful inventions, which have actually been brought into real use. We know beforehand what ideas are necessary to complete the invention, and whether the pupil has all the necessary knowledge. Though by the courtesy of poetry, a creative power is ascribed to inventive genius, yet we must be convinced, that no genius can invent without materials. Nothing can come of nothing. Invention is the new combination of materials. We must judge in general of the ease or difficulty of any invention, either by the number of ideas necessary to be combined, or by the dissimilarity or analogy of those ideas. In giving any problem to children, we should not only consider whether they know all that is necessary upon the subject, but also, whether that knowledge is sufficiently *familiar* to their minds, whether circumstances are likely to recall it, and whether they have a perfectly clear idea of

the thing to be done. By considering all these particulars, we may pretty nearly proportion our questions to the capacity of the pupil; and we may lead his mind on step by step from obvious to intricate inventions.

July 30th, 1796. L——, who was just returned from Edinburgh, and had taken down, in two large volumes, Dr. Black's lectures, used to read to us part of them, for about a quarter of an hour, every morning after breakfast. He was frequently interrupted (which interruptions he bore with heroic patience) by Mr. ——'s explanations and comments. When he came to the expansive power of steam, and to the description of the different steam-engines which have been invented, Mr. —— stopped to ask B, C, and S, to describe the steam-engine in their own words. They all described it in such manner as to show, that they clearly understood the principle of the machine. Only the general principle had been explained to them. L——, after having read the description of Savary's and Newcomen's steam-engines, was beginning to read the description of that invented by Mr. Watt; but Mr. —— stopped him, that

he might try whether any person present could invent it. Mr. E—— thus stated the difficulty. “ In the old steam-engine, cold
“ water, you know, is thrown into the cy-
“ linder to condense the steam ; but, in con-
“ densing the steam, the cold water at the
“ same time cools the cylinder. Now the
“ cylinder must be heated again before it
“ can be filled with steam ; for till it is
“ heated it will condense the steam. There
“ is, consequently, a great waste of heat
“ and fuel. How can you condense the
“ steam without cooling the cylinder ?”

S——. “ Let down a cold tin tube into
“ the cylinder when you want to condense
“ the steam, and draw it up again as soon as
“ the steam is condensed ; or, if you could,
“ put a *cylinder* of ice up the great tube.”

Some of the company asked, if an horizontal plate of cold metal, made to slide up the inside of the cylinder, would condense the steam. The edges of the plate only would touch the cylinder ; the surface of the plate might condense the steam.

“ But,” said Mr. E——, “ how can you
“ introduce and withdraw it ?”

C—— (a girl of 12) then said, “ I would

“ put a cold vessel to condense the steam at
 “ the top of the cylinder.”

Mr. E——. “ So as to touch the cylinder,
 “ do you mean ?”

C——. “ No, not so as to touch the
 “ cylinder, but at some distance from it.”

Mr. E——. “ Then the cold air would
 “ rush into the cylinder whilst the steam
 “ was passing from the cylinder to your
 “ condenser.

C——. “ But I would cover in the cold
 “ vessel, and I would cover in the passage
 “ to it.”

Mr. E——. “ I have the pleasure of
 “ informing you, that you have re-invented
 “ part of the great Mr. Watt’s improvement
 “ on the steam-engine. You see how it fa-
 “ cilitates invention, to begin by stating the
 “ difficulty clearly to the mind. This is
 “ what every practical inventor does when
 “ he invents in mechanics.”

To the good-natured reader we need offer
 no apology, to the ill-natured we dare at-
 tempt none, for introducing these detailed
 views of the first attempts of young inven-
 tion. They are not exhibited as models,
 either to do honour to the tutor or his pupils ;

but simply to show how the mind may be led, from the easiest steps, to what are supposed to be difficult in education. By imagining ourselves to be in the same situation with children, we may guess what things are difficult to them; and if we can recollect the course of our own minds in acquiring knowledge, or in inventing, we may by retracing the same steps instruct others. The order that is frequently followed by authors, in the division and subdivision of their elementary treatises, is not always the best for those who are to learn. Such authors are usually more intent upon proving to the learned that they understand their subject, than upon communicating their knowledge to the ignorant. Parents and tutors must, therefore, supply familiar oral instruction, and those simple, but essential explanations, which books disdain, or neglect to give. And there is this advantage in all instruction given in conversation, that it can be made interesting by a thousand little circumstances, which are below the dignity of didactic writers. Gradually we may proceed from simple to more complicated contrivances. The invention of experiments to

determine a theory, or to ascertain the truth of an assertion, must be particularly useful to the understanding. Any person, who has attended to experiments in chemistry and natural philosophy, must know that invention can be as fully and elegantly displayed upon these subjects as upon any in the fine arts or literature. There is one great advantage in scientific invention, it is not dependent upon capricious taste for its reward. The beauty and elegance of a poem may be disputed by a thousand amateurs ; there can be but one opinion about the truth of a discovery in science.

Independently of all ambition, there is considerable pleasure in the pursuit of experimental knowledge. Children, before they are yet fools to fame, enjoy this substantial pleasure. Nor are we to suppose that children have not capacities for such pursuits: they are peculiarly suited to their capacity. They love to see experiments tried, and to try them. They show this disposition not only wherever they are encouraged, but wherever they are permitted to show it : and if we compare their method of reasoning with the reasonings of the

learned, we shall sometimes be surprised. They have no prejudices, therefore they have the complete use of all their senses ; they have few ideas, but those few are distinct ; they can be analysed and compared with ease ; children, therefore, judge and invent better *in proportion to their knowledge* than most grown-up people.

Doctor Hooke observes, that a sensible man, in solving any philosophical problem, should always lean to that side which is opposite to his favourite taste. A chemist is disposed to account for every thing by chemical means ; a geometrician is inclined to solve every problem geometrically ; and a mechanic accounts for all the phenomena of nature by the laws of mechanism. This undue bias upon the minds of ingenious people has frequently rendered their talents less useful to mankind. It is the duty of those who educate ingenious children, to guard against this species of scientific insanity.

There are prejudices of another description, which are fatal to inventive genius ; some of these are usually found to attend ignorance, and others sometimes adhere to

the learned. Ignorant people, if they possess any degree of invention, are so confident in their own abilities, that they will not take the pains to inquire what others have thought or done; they disdain all general principles, and will rather scramble through some bye-path of their own striking out, than condescend to be shown the best road by the most enlightened guide. For this reason self-taught geniuses, as they are called, seldom go beyond a certain point in their own education, and the praise we bestow upon their ingenuity is always accompanied with expressions of regret: "It is a pity that such a genius had not the advantages of a good education."

The learned, on the contrary, who have been bred up in reverence for established opinions, and who have felt in many instances the advantage of general principles, are apt to adhere too pertinaciously to their theories, and hence they neglect or despise new observations. How long did the maxim, that nature abhors a vacuum, content the learned! And how many discoveries were retarded by this single false

principle! For a great number of years it was affirmed and believed, that all objects were seen by the intervention of visual rays, proceeding from the eye much in the same manner as we feel any object at a distance from us by the help of a stick.* Whilst this absurd analogy satisfied the mind, no discoveries were made in vision, none were attempted. A prepossession often misleads the industry of active genius. Doctor Hooke, in spite of the ridicule which he met with, was firm in his belief, that mankind would discover some method of sailing in the air. Balloons have justified his prediction; but all his own industry in trying experiments upon flying was wasted, because he persisted in following a false analogy to the wings of birds. He made wings of various sorts; still he took it for granted that he *must* learn to fly by mechanical means: had he applied to chemistry, he might have succeeded. It is curious to observe how nearly he once touched upon the discovery, and yet, misled by his prepossession, quitted

* Priestley on Vision, vol. i. p. 23.

his hold. He observed, that the air cells* of fishes are filled with air, which buoys them up in the water, and he supposes that this air is lighter than *common* air. Had he pursued this idea, he might have invented balloons: but he returned with fatal perseverance to his old theory of wings. From such facts we may learn the power and danger of prejudice in the most ingenious minds, and we shall be careful to preserve our pupils early from its blind dominion.

The best preservation against the presumption to which ignorance is liable, and the best preservative against the self-sufficiency to which the learned are subject, is the habit of varying our studies and occupations. Those who have a general view of the whole map of human knowledge, perceive how many unexplored regions are yet to be cultivated by future industry; nor will they implicitly submit to the reports of ignorant voyagers. No imaginary pillars of Hercules will bound their enterprizes. There is no presumption in believing, that much more is possible to science than ever human

ingenuity has executed ; therefore, young people should not be ridiculed for that sanguine temper which excites to great inventions. They should be ridiculed only when they imagine, that they possess the means of doing things to which they are unequal. The fear of this deserved ridicule will stimulate them to acquire knowledge, and will induce them to estimate cautiously their own powers before they hazard their reputation. We need not fear that this caution should repress their activity of mind ; ambition will secure their perseverance, if they are taught that every acquisition is within the reach of unremitting industry. This is not an opinion to be artfully inculcated to serve a *particular* purpose, but it is an opinion drawn from experience ; an opinion which men of the highest abilities and integrity, of talents, and habits the most dissimilar, have confirmed by their united testimony. Helvetius maintained, that no great man ever formed a great design which he was not also capable of executing.

Even when perseverance is exercised, the choice of the subjects on which the inventive powers are employed determines in a

great measure their value; therefore, in the education of ingenious children, we should gradually turn their attention from curious trifles to important objects. Boverick,* who made chains “to yoke a flea,” must have possessed exquisite patience; besides his chain of two hundred links, with its padlock and key, all weighing together less than the third part of a grain, this indefatigable, *minute artificer* was the maker of a landau, which opened and shut by springs; this equipage, with six horses harnessed to it, a coachman sitting on the box, with a dog between his legs, four inside and two outside passengers, besides a postilion riding one of the fore-horses, was drawn with all the ease and safety imaginable by a well-trained flea! The inventor and executor of this puerile machine bestowed on it, probably, as much time as would have sufficed to produce Watt’s fire-engine, or Montgolfier’s balloon. It did not, perhaps, cost the Marquis of Worcester more exertion to draw out his celebrated century of inventions; it did not, perhaps, cost Newton

* Hooke’s *Micrographia*, p. 62.

more to write those queries, which Mac-laurin said he could never read without feeling his hair stand on end with admiration.

Brebeuf, a French wit, wrote a hundred and fifty epigrams upon a painted lady: a brother wit, fired with emulation, wrote upon the same subject three hundred more, making in all four hundred and fifty epigrams, each with appropriate turns of their own. Probably, Pope and Parnell did not rack their invention so much, or exercise more industry in completing "The Rape of the Lock," or "The Rise of Woman." These will live for ever: who will read the four hundred and fifty epigrams?

The most effectual methods to discourage in young people the taste for frivolous ingenuity will be never to admire these "laborious nothings:" to compare them with useful and elegant inventions; and to show that vain curiosities can be but the wonder and amusement of a moment. Children who begin with trifling inventions, may be led from these to general principles, and with their knowledge their ambition will necessarily increase. It cannot be expected that the most enlarged plan of education

could early give an intimate acquaintance with all the sciences ; but with their leading principles, their general history, their present state, and their immediate desiderata,* young people may and ought to be made acquainted. Their own industry will afterwards collect more precise information, and they will never waste their time in vain studies and fruitless inventions. Even if the cultivation of the memory were our grand object, this plan of education will succeed.—When the Abbé de Longuerue, whose prodigious memory we have formerly mentioned, was asked by the Marquis d'Argenson, how he managed to arrange and retain in his head every thing that entered it, and to recollect every thing when wanted, the Abbé answered :

“ Sir, the elements of every science must
 “ be learned whilst we are very young ; the
 “ first principles of every language, the a b c,
 “ as I may say, of every kind of knowledge :
 “ this is not difficult in youth, especially as

* Priestley has ably given the desiderata of electricity, vision, &c.

“ it is not necessary to penetrate far ; simple notions are sufficient ; when once these are acquired, every thing we read afterwards finds its proper place.”

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